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THE SCIENTIFIC BASIS FOR VACCINE THERAPY *

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As a justification for any method of treatment, especially if the method is novel and all-inclusive in the field of proposed application, it is essential that those who apply the method should be convinced that it is based on adequate experience. This basis may be that established by the statistical method of clinical medicine, or it may be that of definite experimentation leading to logical clinical application.

By the statistical method of clinical medicine is meant the study by many physicians of the efficacy of a certain form of treatment as applied to a great number of persons suffering from the same disease. Though we describe treatment so based as empiric in method, such description does not necessarily minimize the importance of the method of treatment or of study on which it is based. Too many remedial agents, though introduced at first in curious and diverse ways, have stood the test of the statistical method to justify the position that clinical experience is not an adequate test. The method, however, is a slow one. Its success is dependent on so many details that not infrequently, in the case of a method which attracts such wide attention as has vaccine therapy, the results are as apt to be contradictory through lack of uniformity in method as they are to be exaggerated through the enthusiasm of the individual.

In the field of vaccine therapy, as practiced in this country to-day, it cannot be denied that this contradiction exists and that opinions of the greatest diversity may be obtained. On the one hand, the enthusiasm of its advocates has no limit, and on the other, even among thoughtful physicians, there are few who, while conscious of the exaggerations of the scope of application and the results of vaccine therapy, are not in doubt concerning their duty in the use of the method. These turn to the second guide to rational therapy—the experience gained by laboratory and allied experimentation—and ask what definite scientific basis we have to rest on while we wait for the verdict of the slower statistical method of clinical medicine. But here the laboratory hesitates, and with some embarrassment urges only caution. It can point with pride to the scientific basis for prophylactic vaccination, but has little to offer in the way of support of therapeutic vaccination either as to its efficacy or as to its harmfulness.

The history of small-pox inoculation and vaccination affords an interesting combination of clinical observation —both statistical and experimental—in the establishment of the first known form of prophylactic vaccination. Later Pasteur's experimental demonstration of the principle that a weakened virus (anthrax, chicken-cholera) capable of producing the disease in a mild form renders the host immune from future infection supported the common popular experience concerning naturally acquired immunity, and also the experience with small-pox.

In more recent years the successful use of vaccination against typhoid fever has offered an excellent demonstration of the value of prophylactic vaccination. The principle of prophylactic vaccination is sound, since it agrees with the knowledge concerning acquired immunity based on the clinical (statistical) method as well as the method of the laboratory based on animal experimentation, and, moreover, in its practical application has been confirmed again and again by the statistical method of the clinic.

Concerning the scientific basis for prophylactic vaccination in the fields of its successful application there can be no question. To fortify an animal against a specific infection by producing, in mild form, the disease in question is a procedure against which no objection, scientific or ethical, can be raised. Quite different is the situation in regard to therapeutic vaccination, a procedure which, despite the fact that the idea originated with Pasteur and has therefore as a principle the support of which Pasteur's name and work offer, it is difficult to reconcile with many of the principles of immunity. But Pasteur's idea was not quite analogous to that on which modern indiscriminate vaccination is based. His antirabic vaccination was, it is true, a treatment after infection, but not after the development of the disease. The object was to develop rapidly an immunity after the individual has been bitten in the hope of preventing the full development of the disease—not the cure of the disease after it has developed.

The present wide-spread use of vaccines dates back only to 1902 and to A. E. Wright's advocacy of the use of dead bacteria in various chronic infections caused by these bacteria. At first the method was considered applicable only to chronic infections and for the most part to circumscribed lesions. Now, however, in the hands of its later enthusiastic advocates, it is applied to practically every form of bacterial infection, whether acute or chronic, local or disseminated.

It is possible, therefore, to trace the development of the theory of vaccination through three stages: (1) The principle of prophylaxis, that is, the production of immunity through the development of a disease in a mild form (small-pox, anthrax, chicken-cholera, typhoid fever); (2) the rapid production of immunity after infection, but before the disease manifests itself by its peculiar symptoms (Pasteur's antirabic vaccination), and (3) curative vaccination, or vaccination after the

* An amplification of a short communication prepared for the meeting of the Medical Society of the State of Pennsylvania, held at Philadelphia, Sept. 22-25, 1913, but not read.

disease is established and has produced its local anatomic lesions and the attendant physiologic disturbance which we call symptoms.

Concerning the scientific basis of the first and second of these principles, no question arises; only the third is in doubt. Unfortunately for purposes of exact exposition, the clinical extension of vaccination has been so all-embracing, so many diseases have been attacked in a hit-or-miss way, that experimental investigation with its slow and time-consuming methods, so necessary for exact interpretation and conclusive opinion, have not kept pace with empiric practice, and indeed it is doubtful if experimental medicine can adequately study these problems. As Theobald Smith[1] has pointed out, most of the types of disease (typhoid fever, pneumonia, puerperal sepsis, general streptococcus infection, gonorrheal metastasis, and the like) are not exactly reproducible in the laboratory. Moreover, the natural occurrence of local lesions in animals is rare, and their experimental production is followed rapidly by spontaneous healing. These two important types of disease—the one with general dissemination of the causative agent through the blood and the other the purely localized lesion—which are treated at present by the clinical vaccinator are, therefore, difficult of study by the methods of experimental medicine. So also is it with the question of vaccination of typhoid carriers. A typhoid cholecystitis artificially induced in the rabbit in an attempt to reproduce the condition of the human carrier is hardly a real analogy, for the rabbit is not peculiarly susceptible to typhoid infection, and the apparent effect of vaccination would be more conclusive if the infection were induced with an organism to which the rabbit had a normal susceptibility.

The difficulty of reproducing certain bacterial diseases in animals, and the failure of these diseases to follow their course as seen in man, as well as their tendency toward spontaneous cure, minimizes the possibility of utilizing this phase of laboratory method as a means of establishing the efficacy of vaccine therapy in diseases of prolonged course. In acute septicemic disease due to virulent organisms, with early death or rapid recovery as the two possibilities, the experimental method offers some promise, but such diseases are not those amenable to vaccine treatment.

It is through studies based on the latter type of experimental disease that our present extensive, but not at all conclusive, knowledge of infection and immunity is based. It is only in an indirect way, however, that this knowledge can be applied to vaccine therapy. It may be argued that as the line between health and disease is defined clinically with difficulty, so the principles underlying prophylactic immunity may be merged one into the other (Smith). Thus we may harbor disease germs, as the pneumococcus, with perhaps slight infection or slight intoxication, without being aware of it clinically. So also while we speak of antirabic vaccination after infection as prophylactic, it is difficult to say on account of lack of knowledge of the pathology of this disease where the prophylaxis ends and the curative effect begins.

The enthusiastic supporters of curative vaccination stretch this possible application to cover all forms of vaccine treatment and assert that the introduction of large numbers of extraneous bacteria stimulate the natural immunizing process to greater activity, thus artificially fostering the slow process of naturally acquired immunity. For this extension of exact knowledge to cover more than certain localized or slowly developing infections there is no basis in fact. Such enthusiasts lose sight of the fact that there is no common mechanism of immunization. The process differs not only according to the type of infecting organism but also according to its virulence and the localization of its toxin in the host; also variations in the reaction of the infected host play an important part.

No more important principle has resulted from immunologic studies than that the process of immunity in each infection must be studied by itself. The principles of immunity to one infection or poison cannot be applied to another, even if both are due to organisms apparently elaborating their poisons in the same way. For example, compare the difference in action of the specific serums for two organisms—the diphtheria bacillus and the tetanus bacillus—each of which produces a soluble toxin. One is curative, the other at best prophylactic. If this difference occurs in the serum therapy of diseases produced by soluble toxins, and our knowledge of these is perhaps the most satisfactory, how unwise it is to apply a general rule to vaccine therapy, our scientific knowledge of which is so slight.

Is it logical to apply the same procedure to a definitely localized lesion such as the staphylococcus abscess and also to a bacteriemia such as that due to the streptococcus or pneumococcus? Immunology has taught us that many cooperating and interacting forces are concerned, as antitoxins, bacteriolysins, opsonins, agglutinins and phagocytosis. Not all cooperate equally; in one disease, antitoxin formation appears to be the essential mechanism, in another phagocytosis, in a third bacteriolysin, and so on. In no two diseases is the interaction the same, and the reaction may vary according to the individual characteristics of the infected individual. These factors were emphasized by Wright, but are seldom considered by the present-day clinical vaccinator, who applies the same method to all infections. They are, however, the factors on which the scientific basis of vaccine therapy, if it is to be attained, must rest. As many of the known diseases cannot be exactly reproduced in animals, and as reactions vary in different hosts (species), the scientific basis of vaccine therapy can be obtained only through the careful studies of clinical research controlled by the accurate methods of the experimental laboratory. As Smith[2] stated some years ago, "The practicing physician in cooperation with the clinical laboratory will have to work out his own salvation, and this can be done only with the aid of the most rigorous and painstaking methods which medical science can supply. Any other course is certain to lead astray."

The discussion of curative vaccination may be simplified by dividing infections into two groups, the localized and the disseminated. In the case of localized chronic infections, a plausible explanation is at hand and it is this which probably elucidates the frequent successful use of vaccines in this group and fully justifies their use.

A chronic localized infection is probably such because the infected individual has a degree of resistance sufficient to prevent the spreading of the infection. This localization may operate, through a walling off by new tissue and therefore imperfect exchange of fluids, to prevent the entrance in adequate amounts of immune bodies from the blood and lymph, or the bacteria may have become resistant to the mild attack of diluted immune bodies. Surgical intervention may overcome this by allowing, through incision, the escape of easily evacuated

1. Smith, Theobald: An Attempt to Interpret Present-Day Uses of Vaccine, THE JOURNAL A. M. A., May 24, 1913, p. 1591.

2. Smith, Theobald: What is the Experimental Basis for Vaccine Therapy? Read at the Annual Meeting of the Massachusetts Medical Society, June 8, 1910.

contents and the destruction of the infecting agent by the immune elements in the large amounts of fresh blood or lymph which enter the area of infection. Also the dissemination of the bacteria locally may aid to increase antibody formation. Vaccine therapy substitutes for surgical intervention the injection of large numbers of dead bacteria in locations from which their immunity-stimulating substance or substances may be readily absorbed. These acting as a stimulus cause the formation of antibodies, which, entering the blood-stream, rapidly raise the content of immune substances in the body fluids, and these in turn coming in contact with the local lesion, and disturbing the equilibrium between the bacteria and the local reaction, may lead to the overwhelming of the infecting agent.

This theory is supported by our knowledge of leukocytosis—the hyperleukocytosis of an acute non-encapsulated lesion and the normal or hypoleukocytosis of a chronic localized lesion. In the latter circumstance substances stimulating leukocytosis do not escape, and the reacting mechanism in the bone-marrow is not stimulated. The condition is analogous to the failure of increased immunity under the same circumstance; indeed, it is difficult to deny that the mechanism of leukocytosis is not perhaps the most important mechanism of the immunizing process in disease characterized by local suppuration. As a practical rule one would expect the administration of vaccine to be of value in local suppuration with a normal or hypoleukocytosis and to be superfluous in that with hyperleukocytosis. This question has been studied in connection with Wright's opsonin index, but in later years, with the increasing doubt concerning the value of this index, the interesting problems of leukocytosis in connection with vaccine therapy have been largely neglected by the clinical vaccinator.

In the second group of infections, those characterized by general dissemination and invasion of the blood-stream, the situation is entirely different, and for curative vaccination no scientific basis, as the result of experimental investigation, can be offered. We know that toxemia and fever are the natural results of bacterial activity and, moreover, that the presence of the former in some degree is essential to the initiation of the immunizing process, and that under experimental conditions this process occurs more rapidly at temperature above the normal than it does at normal temperature. It is difficult therefore to understand how the immunizing process can be hastened, if severe toxemia and hyperpyrexia are already present, by increasing the intoxication by the artificial introduction of more toxin. The argument used to support the treatment of local infections cannot be used here, for in a general septicemia, with organisms in every tissue of the body, the addition of a few million organisms more or less cannot be a factor of great importance; moreover, with such wide dissemination of the infecting agent it would seem impossible, by injection, to bring into action new cell territories, not already involved, for the local production of immune bodies.

It is theoretically possible, on the other hand, in those cases of parasitism—the carriers—in which the toxicity of the persisting organism is of low degree and produces slight clinical symptoms (no fever and no toxemia to stimulate a higher grade of immunity) that the introduction of dead bacteria, capable of being immediately utilized, stimulates the higher level of immunity necessary for the termination of the parasitism. In such cases, vaccine therapy, in that the mechanism of increasing immunity is analogous to that in local infections, would appear to be of value; practically, the treatment of typhoid carriers by vaccination has been an absolute failure.

This summary indicates that we have at least a plausible theory on which to base the practice of vaccination in localized chronic infection; a possible extension of the same theory to carriers, but no experimental or other scientific basis for vaccination in diseases characterized by wide dissemination and general infection.

It is not a part of this discussion to take up seriatim the use of vaccines in the various infections. Certain practical phases of the present use of vaccines must, however, be considered.

AUTOGENOUS VACCINES VERSUS MIXED VACCINES

In all the early work curative vaccination was based on the principle of making a vaccine from the organism responsible for the lesion of the person to be treated. In this early work the bacteriologist was therefore an important agent, not only in the isolation of the organism, but likewise in the preparation of the vaccine. The field was as a result largely occupied by expert bacteriologists or those specially trained to the needed technic. It is probably for this reason that such excellent results were obtained, especially in the treatment of local infections, to which the procedure was at first limited. Later it was considered justifiable to prepare a vaccine for each of two associated organisms, but still the principle of "autogenous" vaccines held and the vaccines were always prepared from the lesion to be treated. Still later, with the commercialization of vaccines, not only was the principle of autogenous vaccine largely abandoned, but three, four or half a dozen organisms were included in one mixture, thus inaugurating a bacterial polypharmacy, if the term may be used, as absurd and unscientific as the "shotgun" prescribing of our older drug therapeutics. A mixed vaccine for common "cold" containing seven micro-organisms (staphylococcus, streptococcus, pneumococcus, *Micrococcus catarrhalis* group, bacillus of Friedländer group, diphtheroid, *Bacillus influenzae*) is of one of the most recent bacterial "shotgun" mixtures, which takes the chance of one lucky bull's-eye in seven shots. No one can claim a scientific or even a common-sense basis for the treatment of a cold by such a mixture. It relieves the physician of the necessity of an etiologic diagnosis, discourages the search for contributing factors, and subjects the patient to uncontrolled experimentation with the "newest thing out." When one remembers that most of these so-called "mixed vaccines" are not vaccines in the sense of the word as used by Pasteur and Wright, that is, the bodies of killed bacteria in suspension, but are the "sterile aqueous solutions of metabolic substances generated by bacteria grown in artificial mediums,"[3] the possibilities of subjecting the patient to multiple intoxications, not essential to his recovery, are apparent. To inject a carefully prepared autogenous vaccine, that is, the centrifugalized and washed bodies of dead bacteria similar to those causing the disease, in the hope of stimulating immunity in a mild and gradual way, is a defensible procedure; but to inject the soluble products of half a dozen or more pathogenic bacteria is a species of privileged poisoning under the protection of professional usage which few physicians would attempt with the better-known inorganic alkaloidal poisons of the pharmacopeia.

So unscientific and discreditable is the present tendency that all reputable physicians, especially those who

3. See advertising department of almost any medical journal.

sincerely believe in a rational vaccine therapy, should insist, first, on an etiologic diagnosis, secondly, on an autogenous vaccine, and, finally, on the most careful and painstaking study by both laboratory and clinical methods of all phenomena before and after vaccination. The use of more than one vaccine in a given case need not be frowned on; if a lesion contains more than one organism, a corresponding vaccine for the secondary invader may be prepared; but the principle of the autogenous vaccine should be maintained. Commercial mixtures should be avoided at all times, especially if they contain the products of more than one organism. Only by following these rules in the study of large groups of cases can vaccine therapy be placed on a respectable basis. Perhaps cumulative clinical evidence thus obtained may yield eventually a scientific basis.

VACCINES IN DISEASES OF NON-BACTERIAL OR DOUBTFUL ORIGIN

One firm which is extensively engaged in the exploitation of the mixed vaccine advertises that "practically all acute and many chronic diseases are caused by the metabolic products of bacteria,"[4] and proceeds to prepare vaccines for diseases the etiology of which is unknown, or at least doubtful. Like the Athenians, who in the fear that they might neglect an unknown deity, provided for the worship of the "unknown god," these manufacturers have their "mixed infection" preparation "applicable to the multiplicity of infections which may be said to be of questionable etiology."[4] This point of view which, it is a satisfaction to state, originated with the manufacturers and not with the profession, coupled with the assurance that vaccines can do no harm, has led to many absurdities in vaccine therapy, and as certain groups of physicians show more and more of a tendency to allow the commercial vaccine-makers to control their diagnosis as well as their treatment, it would seem advisable for the more carefully trained and less susceptible groups of the profession to act reservedly and to advise caution. A recent writer on this subject[5] has given, as example of some of the weird claims or suggestions made (for the most part this is true in trade, not medical journals) supporting vaccination, the use of mixtures of bacteria in the treatment of vertigo, pruritus ani, hay-fever, rheumatism, sciatica, gall-stones, appendicitis and heart-block. The extent to which the manufacturers have impressed the profession was demonstrated at a recent meeting of the most dignified, exclusive and presumably scientific of our national medical organizations, when one of its members discussed the relation of the streptococcus to heart-block and certain mental disturbances and the question of vaccine treatment of such conditions.

Rheumatism, diseases of the bones and joints, and allied conditions have come in for a large share of attention by the commercial maker of vaccines. The "Rheumatism Phylacogen," through a vast amount of advertising, is almost as well known as Ehrlich's salvarsan, but how different its origin and the method of testing its efficacy and of bringing it before the profession! The most ardent supporter of the view that certain forms of joint-trouble may be infectious or toxic in origin cannot accept the opinion of the manufacturer that the same treatment applies equally well to "acute rheumatic fever, acute articular rheumatism, acute inflammatory rheumatism, chronic rheumatism, rheumatic arthritis, rheumatic myalgia, rheumatic iritis, lumbago, sciatica."[4] Despite the inconsistencies of this classification of "rheumatic" (*sic*) affections, many physicians accept the advice, broaden the scope of their treatment and gladden the heart of the manufacturer by including many forms of chronic arthritis which he does not mention; but they are consistent to the extent that their additions include diseases of unknown or doubtful etiology. This they do in spite of the fact that the manufacturers definitely tell them that "failure of Rheumatism Phylacogen, properly administered, affords presumptive evidence of an error in diagnosis."[4] Not only is this Phylacogen, according to its supporters, a specific in treatment, but it is also a specific in diagnosis—the equal of quinin in malaria, of tuberculin in tuberculosis, a combined salvarsan and Wassermann reaction in one and the same package—and all this in a group of diseases of doubtful etiology!

To use conservative language, such treatment is purely empiric and wholly speculative. When the joint condition is associated with a focal infection in some distant part of the body and an organism can be isolated and an autogenous vaccine prepared, the use of the latter in addition to local treatment is a justifiable procedure, on the general theory of the vaccine treatment of local infections. When a local lesion cannot be determined and an etiologic diagnosis is therefore impossible, vaccine treatment, "mixed" or otherwise, is indefensible, both on the basis of rational therapeutics and of the ethics which control the physician's relation to his patient.

That many physicians claim excellent results for vaccines in the treatment of diseases of obscure origin is not conclusive. It is in just this class of diseases that the osteopath, the naturopath and others of the same group likewise claim most brilliant results for their peculiar methods. Who is to judge of the influence of a single factor in the treatment of disease? Has not past experience shown that early results with new cures are usually brilliant? How many diseases heal spontaneously or are improved despite any treatment? How important is the psychic influence of a new widely heralded treatment? And, on the other hand, are the unsuccessful results always reported; do we learn, except by accident, of the failure to improve and of sudden death due to the treatment? Many factors must be considered in arriving at an opinion.

The present attitude with regard to vaccination in diseases of doubtful origin promises little for either etiologic diagnosis or specific treatment, the two aims of modern medicine, nor does it aid that broader effort to advance social welfare, in the furtherance of which, medicine, if it is to remain a powerful factor, must be both safe and sane.

If the venturesome practitioner feels compelled to use vaccines in diseases of obscure origin, let him do so, supported by every aid which laboratory and clinical research may offer; but the wiser course, in the absence of a demonstrable local infection from which an autogenous vaccine may be made, is to leave vaccination to others. One fact, the essential mechanism of vaccination, must not be misinterpreted or minimized, and this is especially important in view of the advertised statement concerning commercial vaccines. The statement that "the growth of infecting micro-organisms can be arrested and their effects neutralized by the products derived from their development in artificial culture mediums"[4] is misleading in that it implies direct bactericidal and antitoxic action—which is not the case—and leaves out of the question the only rational explanation of vaccination, that it is the stimulation of the immunizing process in the host. This misleading statement of the commercial vaccine-

4. Advertising notice, Parke, Davis & Co.
5. Stone, W. J.: The Use and Abuse of Bacterial Therapy, THE JOURNAL A. M. A., Feb. 15, 1913, p. 489.

maker is responsible for much of the misunderstanding concerning vaccine therapy and its curative value. As Theobald Smith phrases it, "Vaccines applied during disease will be rarely, if ever, life-saving, but they may hurry a stationary or languid process which tends to recovery, by hurrying into play the unused reserves of various tissues."

SUMMARY

1. Prophylactic vaccination rests on a sound scientific basis of experimental study and clinical observation.

2. Curative vaccination has no sound experimental basis, but the application of the general principles of immunity as well as clinical observation offers a plausible basis for the treatment of localized, more or less chronic infections, and of "carriers." On the other hand, no satisfactory basis is at hand for curative vaccination in the acute self-limited diseases characterized by general dissemination and systemic infection. All attempted vaccinations in this group must be considered as purely experimental.

3. The only logical method of vaccination is the use of "autogenous" vaccine. Mixed vaccines, commercially prepared, constitute a type of bacterial polypharmacy which should be discouraged as unscientific and nonethical.

4. Therapeutic vaccination, if it is to be placed on a scientific basis, should be regarded as a method of treatment based on the study of the individual and his infection and not as a ready-made method capable of the universal application of stock vaccines. The use of vaccines in diseases of doubtful or unknown etiology is unscientific and ethically indefensible.

5. Every physician practicing vaccination should bring to bear in the study of his results every method of laboratory and clinical investigation which promises light, and preferably should work with a trained immunologist. Thus only can definite knowledge of the efficacy of vaccination be obtained. It is well to remember the words of A. E. Wright in this connection. Wright asserts that for such skilled service as that demanded by vaccine therapy "is required a man who has spent years of study to master the technic; to know how to make the vaccines, to know where to look for the microbes, to know which are the most important microbes, to know how to isolate them, and, most of all, a man with sufficient experience and ability to apply all these things."

6. In the interpretation of results it should be borne in mind that, as Theobald Smith has emphasized, vaccines rarely, if ever, cure, but act rather in aiding a process which tends to recovery by stimulating a languid process of immunization.

In the preparation of this paper I acknowledge the free use of two papers on the same general subject by Theobald Smith,[6] and one by F. P. Gay.[7]

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6. Smith, Theobald: What is the Experimental Basis for Vaccine Therapy? read before the Massachusetts Medical Society, June 8, 1910; An Attempt to Interpret Present-Day Uses of Vaccines, THE JOURNAL A. M. A., May 24, 1913, p. 1591.

7. Gay, F. P.: Cal. State Jour. Med., July, 1911.

Mistakes Not Always the Result of Ignorance.—"Even Homer sometimes nods," and the most alert of us sometimes become blind to the significance of symptoms and signs with which we were perfectly familiar at an earlier period of our professional career. Mistakes may thus arise, not so much from a lack of knowledge, as from the fact that the possibility of such and such a condition has "never once crossed the mind."—F. W. Langridge, in *Clin. Jour.*

THE PROBLEM OF THE CRIMINAL IN THE LIGHT OF SOME MODERN CONCEPTIONS

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Since Lombroso enunciated his views as to the physiognomy of criminals which caused him to place them in a class by themselves, he has gained many adherents with views modified and extended. There has developed, naturally enough, an opposing army of thinkers who may be divided into those who place the blame for criminal offenses entirely on the social environment of the offender, including his training or lack of it from birth to maturity, and those who regard him as wilfully vicious even though morally defective, and therefore responsible for his actions.

It would seem that in the course of the controversy the latter view has steadily been losing ground, while the former has not as yet made good and has lost many from its camp because of disappointing results following half-hearted or impulsive attempts at prison reform without a clear understanding of the material dealt with.

More and more champions of the Lombrosian idea in its essence, namely, that the criminal is inherently abnormal, have come to the front with evidence more or less worthy, and criminology at the present time is fast becoming a medical science rather than a legal one.

Even before Lombroso's publication there appeared in 1870 an article by Bruce Thompson, resident surgeon in the prison at Perth, Scotland, which argued from the medical point of view in strong terms. To quote:

> On the borderland of lunacy lie the criminal populations. It is a debatable region; and no more mixed problem comes before the medical psychologist than this, viz., where badness ends and madness begins. The inmates of asylums and of prisons are so nearly allied that thin partitions do their walls divide.

To quote again:

> From large experience among criminals I have come to the conclusion that the principal business of prison surgeons must always be with mental diseases; that the number of physical diseases is less than psychical, and that the treatment of crime is a branch of psychology.

He then lays down the following propositions:

1. There is a criminal class distinct from other civilized men.

2. The criminal class is marked by peculiar mental and physical characteristics.

3. The hereditary nature of crime is shown by the family history of criminals.

4. The transmission of other nervous disorders with crime in this class proves the alliance of hereditary crime with other diseases of the mind, such as epilepsy, dipsomania, insanity, etc.

5. The incurable nature of crime in the criminal class goes to prove its hereditary nature.

Whether these propositions are justified or not, they go to show the impression that a close study of the criminal made on a careful observer before the days of modern psychiatry and psychanalysis, before the realm of the subconscious mind had been explored by Charcot and Janet, Freud and Jung.

But this new school or phase of the subject is by no means on a footing sure enough to convince either the public at large or the legal profession of the justification

for its point of view, nor has it received often enough that respectful hearing in the courts which would have prevented injustice being done not only to the prisoner at the bar, but also to society. Nevertheless, complete justice to both offender and society is slowly on the way, and even those who oppose or take no thought of the newer doctrines are unconsciously falling in line with them by their attempts to ameliorate the condition of the convict, by agitating for prison reform, indeterminate sentences, the parole system, and the changing of the prison into an institution for correction and custody rather than punishment. True enough, more of sentiment than of science is back of these methods, and therefore in many individual instances harmful injustice to society and ultimate harm to the offender against society is wrought. This is inevitable in any period of transition from an erroneous to a more correct method of dealing with social problems. As more harmony of opinion comes to exist among those who have been forced to take up the problem because of a contact gradually growing more intimate, justice to all will come nearer. And it is the psychiatrist, with his collaborator, the psychologist, on whom the responsibility must rest most heavily if the newer ideas of the nature of crime as a disease, of the criminal as a sick man, are to prevail.

There is no longer any credited opposition to the view that criminal offenses, petty or otherwise, are the products of individual and social disease. With the latter aspect of the subject I am not at present concerned. While the influence of environment, for those most charitably inclined, excuses the offender from responsibility for his condition, it does not excuse him from responsibility for his acts. But if every offender is a diseased person, in the psycho-physiologic sense, his responsibility must come into question before the bar of justice.

QUESTION OF RESPONSIBILITY

Many a medicolegal battle has been fought over this question. The issue has been confused usually because the legal mind has ever thought of consciousness as synonymous with sanity. Because a man knew what he was doing the lawyer has held him responsible. But a man's mental make-up is a very complex thing; it is a bundle of psychic forces and habits which may be summed up in three divisions: intellect (or consciousness); emotion, that is, impulse to act; and will, that is, action itself. No two persons are alike in the strength or weakness of one or the other of these forces. To take the view that consciousness of the wrongfulness or illegality of an act at the time of its committal makes the offender "responsible" for it and legally sane, is inconsistent with the well-founded knowledge of mental functions which we now possess. Conduct is not dependent chiefly on knowledge, but much more on impulse or emotion and a will capable or incapable of controlling and directing impulse in a way to harmonize with knowledge, that is, consciousness.

It is just because of this complexity of function that so many different kinds of crimes are committed and so many different types of criminals exist, and the more or less inadequate classification of criminals that has been attempted by various writers will show when analyzed that consciously or unconsciously the classifiers have characterized the objects of their study according to the mental function most involved in them.

For example, Ferri, a follower of Lombroso, classifies criminals as follows:

1. The criminal by instinct, who is the born criminal.
2. The passional criminal, who commits crime under the influence of passion.
3. The criminal from chance.
4. The criminal from habit.
5. The insane criminal.

In the first group would be placed those who by reason of some inherent defect involving the intellectual and emotional functions are incapable of developing the sense of love, self-sacrifice, pity, honor, altruism or remorse—persons whose standard of right and wrong can never be the same as that of the average member of society in the period in which he lives. These are cases of arrested development in the ethical sphere and represent reversions in this faculty to primitive types.

Illustrations of the brute instinct which we all possess are seen in the class of criminals whose acts are due to passion, becoming, on sufficient provocation, beyond control because of weakness of will in the nature of a deficiency of inhibition power in the nervous system. Now it is known from physiologic investigations that the power of inhibition is a function of certain nerve cells and fibers in the cortex of the cerebrum.

In the case of the criminal from chance we are confronted with a feeble-minded person who is easily made the subject of suggestion because of deficiency of judgment and who responds to the criminal suggestion because of deficiency of inhibition. Persons of this kind are the tools of the more intelligent in crime, are harmless in themselves, and in an environment in which they are safeguarded from temptation they lead normal lives. They are children all of their lives in so far as their faculty of judgment and power of will are concerned.

In the class of habitual criminals are to be found those who by reason of environment, especially early environment, lead criminal careers in response to the association of ideas which their environment has aroused or which has been aroused by psychic shocks during the age prior to that of mature judgment; these shocks have affected the subconscious mind in a way to make it seek relief in periodical reaction, usually of a resentful, retaliative nature. Such a career is for them the path of least resistance. The first crime has relieved the depth of the subconscious mind from tension, and thus aroused in it sufficient pleasure or desire to cause disassociation of emotion from intellect at the time when the opportunity to commit the crime again occurs. Persons of this kind form the class of recidivists or repeaters, and it is noteworthy that prison officials have reported that the subsequent offense of the recidivists is exactly like or similar to the preceding one. Their condition may be compared in a measure to that of the kleptomaniac, in whom, however, there is a much wider disassociation of consciousness and who is more definitely insane. They may also be compared or likened very closely to the hysterical patient as regards the essence of the disorder. Janet shows clearly the nature of the weakness of will and of obsessive ideas and their consequences in this type of mind, for example:

> This feebleness of will and of attention is, in fact, manifested by a second characteristic which seems the inverse of the preceding (suggestibility), and which, nevertheless, is its logical consequence. Just as hystericals are incapable of beginning an action, starting a belief, or a perception, so are they equally incapable of stopping any when once started. To stop an action is to change our general state. It is to adapt ourselves in another manner to a new circumstance. These patients, who understand no change, understand still less such an one, for it is necessary to create a clear and powerful thought in order to stop the automatic development of an old

thought that has become stronger and stronger through repetition. "When I have begun something," we heard a patient say, "I must go on with it; I cannot stop; I would break the windows, kill myself—I am pushed on by my ideas; driven in a way that I cannot resist—I fall into an idea as down a precipice, and the declivity makes it hard to get back again!"[1]

In the definitely insane group of criminals, that is, those having one of the clear-cut psychoses, there are all grades of mental disintegration involving, as in the borderland cases, one or more or all of the functions of mentality. Those most prone to commit statute offenses are the paranoiac, with his disruption of judgment; the epileptic, in whom consciousness is almost entirely split off and who at the time of the act is almost entirely a subconscious automatic personality; the kleptomaniac; the dipsomaniac; other drug habitués, especially the cocain fiend, who may commit violence in reaction to hallucinations. Responsibility for crime committed by persons of this kind can be at once dismissed.

But when there are offenders of the first four classes enumerated to consider, we are brought face to face with the "borderland cases" in psychiatry. These comprise that vast number of unfortunates who are psychopathic, but are rarely committed to hospitals for the insane and are so disposed of only in their episodal periods of excitement or quarrelsomeness. When they recover to their usual level they are again discharged into society no more fit than before to cope with its complexities. Among these are the ones who commit petty offenses for which they are sent to jail, workhouse or reformatories for short terms; after their release they soon are returned because of inability to get along in any environment in which they are not closely subjected to organized discipline. They behave very well in custody, and if kept so for prolonged periods would gradually develop habits of self-control, concentration of mind and industry, which would make them self-supporting in occupations fitted for their capacities. The vagrant, the brawler, the gangster, the prostitute, cadet and the ne'er-do-well all belong to this group. They have been called by several writers "constitutional inferiors,"[2, 3] and this is a correct term to apply to them, if the particular function of mentality in which they are inferior is designated.[4, 5] Otherwise the term is unsatisfactory, for in some of their capacities many of them are found to be exceptionally brilliant, or at least superior to the average, that is, in music, drawing, literature, invention. For these, one writer prefers the term "constitutional abnormality."[6] The sort of offenders just described may be found in any of the first four groups of Ferri's classification, as may those who commit more serious offenses, crimes which are punished by long sentence in the penitentiary or state prison.

All offenders, indeed, may be characterized by one or more of the following attributes:

1. Exaggerated suggestibility.
2. Exaggerated egotism.
3. Emotional instability.
4. A lack of altruistic or unselfish sense.
5. A lack of the power of sustained energy, that is, abnormal nervous fatigue.
6. A tendency to the easy disintegration of consciousness which permits the brutal or inferior qualities of the subconscious mind easily to become dominant when temptation occurs and to be ungoverned by the critical quality of the conscious mind; even when the critical function is sufficiently aroused, the power of direction by the will is in abeyance. Here is again seen the similarity in mental make-up of these persons to that of one afflicted with hysteria.

1. Janet, Pierre: Mental State of Hystericals, Rueff & Co., Paris, 1893.
2. Kraepelin: Psychiatrie, Abel, Leipsic, 1887.
3. Meyer, Adolph: An Attempt at the Analysis of the Neurotic Constitution, Am. Jour. Psychol., 1903, xiv.
4. Wright, H. W.: A Consideration of Constitutional Inferiority, New York Med. Jour., Dec. 26, 1908, p. 7.
5. Karpas, M. J.: Psychic Constitutional Inferiority, New York Med. Jour., March 21, 1913.
6. Oberndorf, C. P.: Constitutional Inferiority and Its Psychosis, THE JOURNAL A. M. A., Jan. 27, 1912, p. 249.

THE QUESTION OF SANITY

It is not my purpose to attempt to account for these abnormalities of conduct by theoretical consideration of the pathologic nature of them in so far as brain structure is concerned. Too little is known, too little can be known, of what constitutes complex brain function. But it can be confidently asserted that in every person of the types above considered we are dealing with a mentally abnormal person — therefore not a sane person, but a diseased person, a sick person, as well as an offender against the laws of the society in which that person lives —laws to which perfectly sane or well persons have no difficulty in conforming.

TREATMENT OF THE CRIMINAL

If the views just expressed are true to the best of our present knowledge, any method of dealing with the offender which contains an element of punishment is unjust to him and also illogical. It is likewise unjust and illogical from the point of view of the protection of society; for the idea of punishment necessitates fitting the punishment to the crime and not to the criminal. When the allotted punishment is completed, the criminal, unchanged, is set free. Society has the right to protection, the individual the right to justice; but the only real justice for the person who is in error is the attempt to correct the condition which caused him to err.

Does punishment do this? Have crimes decreased in the aggregate or in the individual case because of the customary penalties imposed for them? Statistics do not warrant any such assumption. In the United States from 1885 to 1906, murder and homicide increased from 32 per million inhabitants to 108 per million, while the number of executions in the same period increased from 17 to 76. The number of those in prison for all offenses decreased by 30 per each 100,000 inhabitants during this period. An increase is also shown in less serious offenses.[7] If these statistics mean anything, may they not go to show that the habitual or instinctive criminal is too often set free to repeat his errors and also to influence the unrecognized, potential criminal of the feeble-minded, constitutionally inferior class? It is the instinctive or habitual criminal who often is pardoned for good conduct, because of his ready adaptability to prison life when he knows such an attitude to be for his advantage. In these offenders, however, punishment only arouses a desire for retaliation on society.

What, then, is the remedy? Are we to abolish prisons and penalties and, taking the fatalistic view that all crime is incurable, shut up all offenders in asylums for the remainder of their lives?

Abolishment of punishment is certainly called for and is gradually coming as the prison is changed into a house for correction and custody, into a colony for abnormal people—where they may live as nearly normal a life as is possible for each and every one of them, where their individual characteristics and capacities are studied and their lives arranged accordingly. The same change has

7. United States Census, 1910.

already occurred in the methods of dealing with the obviously insane, as may be seen by a visit to the most up-to-date state hospitals. If these methods are worth while in the case of the chronically insane, they are still more so in the treatment of criminal offenders who, though mentally abnormal, are, in the majority of instances, amenable to much greater improvement in habits of thinking, feeling and acting.

But such treatment cannot be accomplished without the supervision and cooperation of the medicopsychologic profession. It is perfectly possible for those who have associated for a long time in a professional capacity with psychopathic persons to determine who is amenable to this, that, or the other form of correction, and to tell when the person is sufficiently corrected in his neuropsychic functions to justify his parole into normal society.

It is also perfectly possible for such trained men to determine who should be kept in permanent custody. It is not possible for those of the legal profession to determine these questions justly unless they also have had the training of the physician and the psychiatrist. Nor is it possible for them to frame just laws as to penalties.

It is not unreasonable, therefore, to foresee the time when the function of the lawyer and the judge will be restricted to the determination of the guilt of the offender and the function of prescribing what is now called the "sentence" or "penalty," but which some day will be called the "therapy" or "treatment," will be taken over by physicians thoroughly trained in mental diseases, who are in the service of the state and consequently free from bias in judgment.

Prison reform must come from within, in response to the conception of crime which scientific study of it as a medicopsychologic problem engenders. Prisons will then become therapeutic schools and colonies controlled by men who know well the sort of material they are dealing with.

These methods and this attitude of mind already prevail in many of our large cities in respect to juvenile offenders. In many juvenile courts a thorough physical and mental examination, including family and developmental history, is made before the judge takes up the case, the offender being detained in a detention home long enough to accomplish the examination. The disposal of the case is likewise influenced almost entirely by the opinion of the medical examiner. If these methods are proper and practicable in dealing with juvenile cases, why are they not also proper for those of a larger growth who are yet children in respect to their development of the moral sense, the will, intellect, self-control, etc.?

Leaving aside the question of the present method of dealing with the major crimes, such as murder, arson, homicide, grand larceny, will any one question the need of reform along the lines suggested in the treatment of minor offenses? Can anything be more ludicrous as well as pitiable than to send the drunk and disorderly, the vagrant, the prostitute and the feeble-minded who have fallen into bad company to the jail or workhouse for a few months, there to find associations and influences worse than they have ever before been in contact with, and then to turn them loose to vent their pent-up feelings in a way which is only a natural response to the lower instincts which such treatment has stimulated!

Let us hope that the day is not far distant when all criminal offenders, "petty" or otherwise, will be looked on in the spirit of compassion, in the light of scientific insight, and their offenses considered symptoms of psychic disease.

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THE ETIOLOGY AND VACCINE TREATMENT OF HODGKIN'S DISEASE

PRELIMINARY NOTE *

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This note is published at this time as a confirmation of the findings in Hodgkin's disease of Bunting and Yates,[1] and Negri and Mieremet,[2] and to call attention to the apparently marked benefit following injections of the heat-killed organisms found in the lymph-nodes.

A Gram-staining, non-acid-fast, polymorphous diphtheroid bacillus corresponding to the one found by Fränkel and Much[3] in smears, and cultivated successfully by Bunting and Yates and Negri and Mieremet has now been isolated from the lymph-nodes in twelve cases of Hodgkin's disease. It was obtained in pure culture in only three cases, while in the rest it appeared in conjunction with a staphylococcus. Whenever possible, a portion or all of two lymph-nodes were removed, one from the group involved the longest (usually the cervical region), and one from the group most recently involved (usually the inguinal region). In addition to planting small pieces of the lymph-node, emulsions in salt solution were prepared by grinding in a sterile motor in sterilized air, and planting the emulsion on blood-agar, blood-serum slants (aerobically and anaerobically) and into ascites-dextrose agar. The latter method has the advantage of yielding earlier and more uniformly positive results. By this method the minimum number of viable organisms and a relative proportion of those present has also been determined. In this way it has been found that the lymph-nodes involved the longest in a given case or those from cases of long standing showed more organisms and a relatively larger proportion of staphylococci, while the more recently involved lymph-nodes or those from the cases of shorter duration showed fewer organisms, but a relatively larger proportion of bacilli.

The marked pleomorphic character of this organism as pointed out by Bunting and Yates has also been noted by us. It has happened repeatedly that single colonies in the dextrose-agar, which showed bacilli only in smears, yielded in subcultures a pure culture of staphylococci aerobically, and forms of the bacillus either pure or in mixture anaerobically on the same medium. These facts suggest strongly that the associated staphylococcus is derived from the bacillus.

The vaccines are prepared by growing the organism isolated on the surface of Loeffler's blood-serum, ascites-dextrose-agar or blood-agar slants for from twenty-four to forty-eight hours. A suspension in salt solution is made, the clumps broken up as much as possible, and thrown down by fractional centrifugation. This clump-free emulsion is now standardized and heated to 60 C. (140 F.) for thirty minutes or one hour. Aerobic and anaerobic cultures are made on Loeffler's blood-serum, and these are incubated at least three days before the vaccines are used, to insure the sterility. Then phenol

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1. Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236; An Etiologic Study of Hodgkin's Disease, JOURNAL A. M. A., Nov. 15, 1913, p. 1803.
2. Negri and Mieremet: Centralbl. f. Bakteriol., orig., 1913, lxviii, 292.
3. Fränkel and Much: Ztschr. f. Hyg., 1910, lxvii, 159.

(carbolic acid), 0.5 per cent., is added, and the treated killed suspensions are placed in the ice-chest for use. Whenever staphylococci were found, an attempt was made to have the vaccine contain the bacilli and cocci in about the proportion found in the lymph-nodes. It is obvious, therefore, that an autogenous vaccine is to be preferred, although good results have been obtained with a vaccine prepared from a series of strains isolated from different cases.

All of the patients presented lymphocytomas, all showed involvement of the cervical lymph-nodes, the majority had enlargement of the axillary lymph-nodes; the inguinal lymph-nodes were moderately enlarged in all of the patients; in four the mediastinal lymph-nodes were so large as to cause respiratory and cardiac embarrassment, with anasarca in two and pleural effusion in two patients. The spleen was palpably enlarged in ten and very large in five of these.

Histologic examination was made of the lymph-nodes of all the patients. The majority may be classed as the endothelioid type (Reed, Longcope, McCallum and others). One was classed histologically as lymphosarcoma and the remainder as simple lymphoma or lymphadenoma. The one patient with the histologic diagnosis of lymphosarcoma did not present clinical evidence of malignancy by general debility, anemia or recognizable metastases. As stated, the diphtheroid bacillus of Bunting and Yates was isolated from the lymph-nodes of all these patients irrespective of the varying histology of the lymph-nodes.

The blood-picture varied with the physical condition, length of illness and the absence or presence of fever. When present, the anemia was of the secondary type. Moderate leukopenia with relative increase of the small mononuclear cells was noted in some of the afebrile patients. Leukocytosis with the usual leukocytic formula occurred in most of the febrile patients. Four patients were febrile at periods. The temperature curve was of the remittent type. Seven patients were treated for long or short periods at the Presbyterian Hospital, Chicago, and were kept at rest. Five were under the care of physicians at home. Roentgenotherapy three times per week was applied to six patients at the hospital and was used with three of the patients under the management of others. Autogenous vaccine was used in all but one patient, who received the vaccine prepared from other patients. The vaccine was first given in the dose of from 5 to 10 millions and gradually increased to a maximum of 100 millions. The vaccine was given subcutaneously and repeated every five to seven days. We have not used it intravenously, but have considered that method of application in obstinate and extreme conditions. In febrile patients the second or third dose has been associated with a reaction consisting of an increase of temperature (in one patient to 107 F.), rapid pulse and general weakness and discomfort. In non-febrile patients only slight general reaction may occur with a rise of 1 or 2 degrees of temperature, slight general muscular aching and debility. But slight local reaction at point of injection occurs.

In six of our hospital patients there was a uniform and relatively rapid decrease in the size of the lymph-nodes—one of these without Roentgen treatment. One patient treated out of the hospital without roentgenotherapy, with very large lymph-nodes, big spleen and febrile, had a violent general reaction with the third vaccination, then became afebrile and the swellings of the lymph-nodes and splenomegaly rapidly diminished. After five vaccinations, this patient passed from our control and observation. Reports from physicians on two of the series show favorable progress with gradual diminution of the tumors of the lymph-nodes and improvement in a general way. One of these patients receives Roentgen treatment also; the other vaccines only. Two of the patients are dead. One with rather rapid enlargement of the mediastinal lymph-nodes died soon after the third vaccination, from the result of mediastinal pressure. This patient was managed at his own home by the family physician and the final clinical details are unknown to us. One patient with enlarged mediastinal lymph-nodes suffered for a year with respiratory and cardiac embarrassment. Right pleural effusion required frequent tapping. Under other care he received roentgenotherapy. A short period before death we isolated the micro-organism from lymph-nodes of the neck and groin and from lymphoid tissue removed from the nasopharynx. The patient died from the result of mediastinal pressure after only one autogenous vaccination.

Of patients under our continued observation one is apparently well. There are no palpably enlarged lymph-nodes; the much enlarged spleen is no longer palpable; the blood-picture is normal; his weight and strength are normal. One patient who suffered from much enlarged mediastinal lymph-nodes and consequent dyspnea, anasarca and great debility was very much improved with diminution of the size of all involved lymph-nodes, gained in weight and was subjectively comfortable, and has had the vaccines and Roentgen treatment every week since June. In October a remittent type of fever developed with gradually increasing anemia of the secondary type, a leukocytosis of about 18,000, with 80 per cent. of polynuclear cells. There was no increase in size of lymph-nodes. On November 24 she returned to the hospital. With rest in bed with vaccines, roentgenotherapy and good food there is again rapid general improvement. The other patients are improving with varying degrees of rapidity.

This preliminary note is presented with the hope that the clinical study may be carried on by others. We hope to present a more detailed report of these and other patients with protocols, definite histology of the lymph-nodes, blood-pictures, immunologic studies of the blood, etc. Finally, we have used Roentgen treatment coincidently with the vaccines, because we believe we were not justified in depriving the patients of any and all sources of help, even if by so doing we deviated from the narrow and definite path of scientific research. If it be finally proved that this micro-organism isolated from the lymph-nodes is the cause of the clinical entity called Hodgkin's disease, the use of the specific vaccines without roentgenotherapy may then be justified.

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Hydrochloric Acid and the Administration of Acids or Alkalies.—T. Gillman Moorhead (*Dublin Jour. Med. Sc.*, Oct. 1, 1913) says that the presence of HCl in diminished or increased quantity is no definite guide to the administration of acids or alkalies, respectively, and that in treatment the stomach cannot always be expected to respond in a manner similar to the reactions in the test-tube. In some cases treatment along definite chemical lines is useful, as in hypochlorhydria, in which tonics and acids are beneficial, but in these cases also alkalies administered some time after a meal are more symptomatically useful by neutralizing the organic acids present on account of abnormal fermentation. In hyperacidity due to HCl, the removal of the cause, such as excessive smoking, excessive drinking, or excessive nerve strain, is much more useful than alkaline treatment.

ETIOLOGY OF ARTIFICIAL FEEDING

A PLEA FOR THE STUDY OF BREAST-MILK PROBLEMS *

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The title of my paper expresses the desire that prompts its presentation—a wish to discuss, from actual clinical experience and from general observation, the reasons that lead up to a discontinuance of breast-feeding and which, therefore, bring about the institution of artificial feeding, and to prove that these reasons are usually fallacious. I shall not deal in statistics or cite classified groups of cases, but simply present the impressions which I have gained while following a clinical experience culled from private practice and from a comparatively large hospital clientele. The type of patients considered embraces a mixture of all classes, from the poverty-stricken alien who has but recently come to our shores to the infant of the rich surrounded with every luxury that the best city or suburban home can afford. The question is asked of every mother who presents an artificially reared babe or one on whom artificial rearing is being attempted, "Why did you take your baby from the breast?" In each instance—it matters not what the social status may be—the answer may be classified under one of three roughly made headings: (1) psychic, (2) educational, (3) economic or social. The divisions are not always distinctly separated, as a given reason may be embraced by one or more headings.

PSYCHIC REASONS FOR DISCONTINUING BREAST-FEEDING

The psychic reasons may as a rule be referred to the maternal mental state at the time. How is this produced? The breast-feeding is usually discontinued through an innate fear either of not being able successfully to accomplish the act of nursing through not knowing how to go about it or through a fear that the product of the mammary gland is sufficient neither in quantity nor in quality to supply the nutritional demands of the infant. Either state is induced by a failure of the mother to recognize the possibilities of her own organism or through an instinct of unfounded anxiety for the welfare of her offspring. The reverse—a rare manifestation of innate selfishness—may be operative. In either of the two former instances the psychosis, if it may be so called, usually has no foundation in fact, or the temporary cessation of the lacteal flow is directly inhibited by the fear on which it depends. This inhibition of secretion finds its analogue in an identical effect on other secretions, notably that of the saliva, when the same etiologic factor, fear, is in evidence. Unfortunately, as will be pointed out later, the profession, by a tacit acquiescence in the probability of the actual disability or, in many instances, by actual encouragement in the idea, is often to blame, if not for the beginning of the trouble, at least for its continuance.

Here the physician loses a golden opportunity of becoming a legitimate psychotherapeutist and, by the same exhibition of indifference or of actual carelessness in other psychasthenic states, permits the irresponsible exponents of questionable systems of mental therapy to succeed where he fails. It is my experience that this element of fear of not being able to accomplish the nursing function successfully is one of the most important factors in the discontinuance of breast-feeding, and I wish here to subscribe to the opinion that rarely, if ever, other things being equal, in an otherwise healthy woman, can a permanent organic, irremovable obstacle to successful maternal nursing be demonstrated.

"I did not nurse my baby because I could not." "My milk poisoned my last baby and it died." Parenthetically, it may be stated that it was not the mother's milk that poisoned the baby, but in all probability the indifferent artificial feeding on which it was placed when the breast was unnecessarily withdrawn. "I never can nurse my babies because my milk dries up." These and similar replies are given to our queries as to why the breast-feeding was discontinued, and not one of them will stand the test of careful scrutiny or of future experience in a birth that is intelligently managed. Repeatedly in physicians' families have I seen instances in which I have been summoned, two or three months after unsuccessful artificial nourishment had been attempted to rear an infant because this element of fear had caused the breast-feeding to be discontinued; while in subsequent deliveries in which the care of the breasts had been placed in my hands and the mother had been properly fed and encouraged and morally supported and all external interfering sources had been excluded, a period of successful nursing has ensued which lasted nine or twelve months and could have continued longer had I so wished. Who among you has not had a similar experience?

The fear that the breast-milk is not the proper food for the infant often depends on the development of the signs of early indigestion—vomiting and green-curded stools, and a failure to gain immediately in weight. This will be referred to again, as it involves the physician's responsibility. Suffice it to say that green stools and vomiting do not constitute a bar to successful nursing, although I have found them to be among the most common causes that put to flight the physician in his half-hearted attempts to conserve the breast to the infant.

Among the better element a pretense of willingness to nurse is often made while at the same time every possible excuse is seized on by the mother in an effort to demonstrate her inability. The exigencies of social life, an inordinate love of pleasure, the confession of utter ignorance and helplessness, a desire to escape the obligations of maternity and to shift them on others, a cowardly exhibition of hysteria or assumed physical weakness underlie the plea for assistance. I know no class of patients more difficult to handle; I know no more disheartening task than to convince such mothers of their error. They must be handled diplomatically, yet withal sternly, the conscientious physician refusing to be ruled by them or to acknowledge the incorrectness of his position. One must appeal to their moral sense, the duty which they owe to their offspring, and point out to them the uncertainties and dangers of artificial feeding. The climax usually comes by the mother seeking advice from one of a more conciliatory mold. Few will yield when once they have determined to seek the services of the bottle until perhaps it is too late—in the presence of a fatal diarrhea, convulsions or pneumonia.

EDUCATIONAL REASONS

The reasons given that may be classified as coming under educational deficiency call into account both the physician's and the mother's responsibility. Infant-feeding, in spite of the so-called advances made in the science, is neither properly taught in medical schools,

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

nor is it properly presented in most of the text-books, or practiced, as taught, by the leading dietitians in their hospitals or in private practice. I do not imply that the text-books fail to present the subject of artificial feeding thoroughly. On the contrary, the authors' attempts at comprehensiveness befog the issue. Too many views, too many theories and too many methods are still being taught. Students and practitioners when through perusing this or that authoritative work, or all of them, are left without the ability to apply practically what they have read. I was amazed recently when visiting the wards of one of the largest institutions of a certain city to find that the feeding cases were left by a distinguished chief in the hands of an inexperienced intern, who in his turn depended on a nurse of less experience. Stock mixtures, carelessly compounded, were fed. All the babies were doing badly. Answers to pertinent questions were evasive. Knowledge of metabolism, digestion and of the adaptability of the mixtures to the individuals was lacking. The wonder is, not that the average physician still refuses to be impressed with the value of scientific feeding, but that he ever attempts to follow out any case to its logical conclusion.

If this be true of artificial feeding, what may be said of the teaching and practice of breast-feeding? It is almost nil. The student and practitioner receive but little information as to how to interpret or to meet the signs of early indigestion, as to what are the best means of conserving the milk-supply and how to meet the problems of nutrition as they occur in the breast-fed. Authoritative opinion satisfies itself by stating that the best way to rear an infant is on the breast and, after demonstrating that the great yearly infant mortality depends largely on conditions attributable to artificial feeding, proceeds, without further comment on breast-feeding, to elaborate page after page of instruction on that means of feeding on which the greatest mortality depends. The paradox is real, since the conservation of human milk may be successfully practiced.

A breast-fed infant has colic: it is constipated or has diarrhea; it vomits; its stools are green and contain mucus and curds. None of these constitutes a bar to successful breast-feeding. With reference to vomiting itself I wish to state that, though it need rarely be so, it is one of the most common causes for withdrawing the breast. In all I have treated eight cases of pyloric obstruction, and in each instance maternal nursing had been discontinued because of the symptom—vomiting—the diagnosis of obstruction not having been considered. A little care and use of the ordinary methods of physical diagnosis would have determined that the cause of the vomiting depended not on the mother's milk, but on an organic stomach affection.

On the other hand, vomiting dependent on faulty milk, as an excess of fat, or on overfeeding or too frequent feedings, does not constitute a valid contra-indication to the use of the breast. Dietetic, eliminative and mechanical treatment of the mother and the institution of common-sense hygienic measures will speedily correct the error.

An infant cries a great deal; it does not seem to get enough milk; it is said to be hungry after nursing; it does not gain in weight rapidly enough; the milk is too thin or too rich, scanty, or entirely absent. Only once in a healthy woman, in a case seen with Dr. Victor A. Loeb, have I met a real instance of an entire absence of milk.

"The mother is too nervous or too irritable." "She is too weak." "All her strength goes into the milk." These and many similar statements are made by the mother, or her friends, or the physician, or all, as an excuse to abandon the breast entirely or to institute partial artificial feeding. Just as vomiting and indigestion rarely constitute a valid reason, so too it may be demonstrated, though time and space forbid detailed consideration of each supposed contra-indication, that none of the many reasons stated are really legitimate bars to maternal feeding.

Abscess of the breast need not, in my experience, in every case indicate complete withdrawal of the breast. The size, location, duration and whether or not pus is secreted at the nipple are the determining factors. If, then, it can be proved that the statement with reference to these supposed contra-indications be true, where does the responsibility lie? What may be done to offset the pernicious tendency to credit these really trivial reasons with such great etiologic influence? Physicians must be educated first to recognize the possibilities of the breast, and they in turn must educate the mothers. The specialist must set the example for the practitioner. Instead of espousing this one's or that one's method of artificial feeding, let him see to it that he is known as an actual and practical advocate of breast-feeding. Let him refuse to place an infant on the bottle just because it is brought to him for this purpose, unless he is presented with a sound reason and one not founded on fear or fancy. Let him, by actual weighing experiments before and after each feeding, satisfy himself as to whether or not the infant is receiving sufficient food. He should consider the weight of the infant at birth, its present weight and its average gain before he determines the nourishment to be unfit. If it be found so, let him make an honest endeavor to rehabilitate the lacteal flow before confessing failure. The need for systematic propaganda is urgent, and to be given authoritative weight it should emanate from the Section on the Diseases of Children of the American Medical Association. We should cease arguing about percentages and calories, the etiologic importance of protein, fat and sugar, the rôle that bacteria play, nitrogen intake and ammonium output, the effect of calcium and potassium salts, the two-hour interval, or the four-hour interval, spasmophilia and the exudative diathesis. Let us cease teaching something to-day and decrying it to-morrow, but let us unitedly declare to the profession and to the motherhood of America that the only correct way to feed infants is on the breast, and then let us teach them how to do it.

The artificial feeding of infants has engaged some of the brightest minds of the profession. From the first attempts of Meigs and Pepper in America to adapt cow's milk to the digestive apparatus of the human infant down to the present day illustrious students, Jacobi, Rotch, Holt, Chapin, Finkelstein, Meyer, Keller, Czerny, Heubner, Rubner and others, besides a host of diligent laboratory workers, the trend of investigation has been along lines leading toward the solution of this problem. In spite of years of effort it has been but partially solved. Some uniform rules of feeding may have been enunciated, but no one food, or one method or one system of feeding has been determined as universally adaptable to the human infant. Have the years spent in patient toil and profound study been for naught? This query may be answered negatively if the profession realizes that it has not solved artificial feeding, and positively if it is not conscious of its failure and at the same time that it has not utilized the advantages of breast-milk feeding. Could one-tenth of the time and study devoted to the investigation of artificial feeding have been diverted

toward the consideration of the conservation of human milk and of the causes which lead to its disuse and of the means of treating and meeting the gastro-intestinal and nutritional disorders of the breast-fed, infant mortality would have speedily and materially dwindled. The efficiency of breast-milk as a prophylactic against acute infectious diseases, rickets and scurvy, and its therapeutic value in many instances in combating a fatal issue, is well recognized but too seldom utilized. In private practice the incidence of an acute infectious disease is almost invariably the signal to discontinue breast-feeding. The mother is actuated by fear. The physician displays a lack of knowledge in conducting the feedings during the interim. Here is a case in point:

CASE 1.—An infant of 3 months with an acute empyema was admitted to the Philadelphia General Hospital. Bulging and redness appeared between the ribs. The empyema ruptured and the opening was enlarged and drainage instituted. After recovery, measles and, later, pneumonia of the opposite side developed, and still later the infant had convulsions. The treatment consisted alone of continuous breast-feeding and ordinary hygienic measures. No drug therapy was employed, and recovery was complete. To-day the baby is a fat, rosy specimen, with but the scar of the empyema remaining.

It would not have taken a great stretch of the imagination to prognosticate the fate of a poorly nourished, anemic, rachitic, indifferently artificially fed infant of this tender age under like circumstances. Breast-milk saved this baby's life and it will do likewise for others. We know well the effect of wet-nursing in many cases of decomposition (marasmus), which cannot be made to gain. The point is not that we do not possess the necessary knowledge—not that the case cited presents anything new—but that we fail, in our zeal to delve deeper into new methods of artificial feeding, to realize the treasure we possess in breast-milk, or, granted we do, we fail to put our knowledge to use. We are as

> one whose hand,
> Like the base Indian, threw a pearl away,
> Richer than all his tribe.

The indifference with which physicians sacrifice the human breast is nothing short of shocking, especially since they possess nothing quite so good to offer. Even to-day the woful lack of knowledge possessed by many practitioners as to how to adjust cow's milk to the needs of the individual is appalling. The cynical manner in which they regard the whole subject of scientific artificial feeding is disheartening. They are the chief offenders. They usually have many poor persons who seek their advice. It is among this class that the ravages of mortality are the greatest. It is these physicians we should reach. They are in need of propaganda which will educate them in the methods of breast-milk conservation.

According to my observations, maternal illness need not constitute a valid permanent contra-indication to breast-feeding in the majority of cases in which it is practiced. This has special reference to slight indispositions, colds, mild infections and minor operations. The ease with which the breast-milk may be rehabilitated can be witnessed daily, after a cessation of many days and even weeks. A wet-nurse was discharged from a case. The infant exhibited an idiosyncrasy to cow's milk. Persistent efforts were made for three weeks with the bottle. Rashes and gastro-intestinal symptoms developed (allergy). The wet-nurse was recalled. Her milk was found to be scanty and poor. Under forced feeding, general hygiene and the stimulus given to the mammary gland by the infant's lips, the fluid was reestablished to overflowing and reached a percentage of fat above 7 per cent., and measures had to be taken to reduce both quantity and quality. Eclampsia, nephritis, grave anemia, malignant disease, tuberculosis, certain forms of cardiac disease, pregnancy, epilepsy, insanity and prolonged infections are the type of illnesses which contra-indicate nursing.

The obstetrician, too, must assume his share of the responsibility in this war of conservation. He must be a breast-feeder enthusiast and should be capable, without the advice of the pediatrist, of handling the problem for at least the two or three weeks of his attendance. Beside his indifference to features other than those directly connected with the accouchement (care of the breasts, inquiry as to the condition of the nipples and the character of the milk, etc.), the greatest error into which he falls is to allow his patient to get out of bed too soon. This is usually followed by bleeding, which is deleterious to the quantity and quality of the milk. One obstetrician of my acquaintance is accustomed to give his patients a dose of Epsom salt daily after the third day. The result is that nearly all of his patients have bottle babies. This case illustrates what may be accomplished:

CASE 2.—One of his patients, the wife of a physician, had received a dose of Epsom salt daily for two weeks. Her milk was practically gone. She was anemic and undernourished, as was the infant at the age of 7 weeks. It was on the bottle in midsummer. The parents were much alarmed, as their first baby had died of intoxication (Finkelstein). Forced feeding, sensible hygiene and a tremendous amount of moral support rehabilitated the milk-flow and carried the infant through the summer and far into the winter with exceptionally satisfactory results.

ECONOMIC REASONS AGAINST BREAST-FEEDING

Reasons for stopping breast-feeding, at once pathetic and difficult to overcome, are those which may be classified as economic or sociologic. No one denies that the poor and ignorant are in need of instruction in hygiene and general physical care. It may be pertinently asked, however, whether or not such instruction brings about desired results. Those who come into daily contact with disease the result of poverty, and endeavor to inject personality into their work and aspire to be more than medical men and to make their hospitals and institutions educational forces, often realize how hopelessly useless is the task. We are reminded of a saying accredited to Henry Ward Beecher that the most potent factor in the reformation of a hungry man is a sandwich. So these mothers, who are poorly housed and poorly fed, who must labor either within the home or outside of it, are best benefited by that advice which comes as actual material assistance to relieve, in part at least, their physical responsibilities.

On whom does the onus rest? On society itself and its representatives—the legislature. Free milk-stations, floating hospitals, clean milk and many other endeavors, providing what appear as luxuries to the poor, but which, as ordinary necessities, are secured, as if by divine right, or at least without the influence of visible external agencies, by those better situated, represent a well-intentioned but misdirected expenditure of thousands annually by the state and charitable organizations. Under our present social system, however, the necessity seems to exist. What else, other than charity, have we to offer to the mother who answers our demand that she nurse her babe by affirming that she must go to work; that she

has not enough food to provide the ordinary fare, without considering the extra quart of milk which she must consume; that she must place her babe in a home or in a day nursery. Recently in Pennsylvania an act has been passed pensioning indigent mothers instead of separating them from their children by placing the latter in public institutions. While accomplishing some good its effect cannot be far-reaching, since it is practically a form of charity, itself a result of perverted social conditions and by its nature necessarily limited in its scope.

Further, it may be pertinently queried whether or not the permanent necessity for charity exists, and who is to determine who shall receive charity and who is to dispense it. In other words, why do poverty and its companion, ignorance, exist? Is it not possible that the error lies at the foundation of our social system, which denies to the worker his rightful share of that which his brawn has built, and gives the lion's share to the brain which conceives or directs? As a consequence his opportunities for education and self-uplift are limited. Does not charity simply represent a return by the individual or by the state of that which originally should have been given to the beneficiary as a product of his labor? If this be so, does it not appear patent that the necessity for charity not only does not exist, but that it is not humane and that, as before stated, it is makeshift and a blight on the state which encourages it?

One may ask, in what manner does this influence infant mortality in general and the problem of breast-feeding in particular? Its effect is potent largely for the reasons enumerated and because it hinders the independence of the nursing mother. It is recognized that however desirable an economic revolution which would benefit this class may be, its fruition and practical realization are not only problematic, but also far remote. The innate selfishness of human nature, the self-love, the exaggerated ego from which we all suffer, will indefinitely postpone the millennium of equal opportunity to partake of the natural resources of the earth and of the common well of knowledge. One fact stands out clearly, and that is that the nursing mother is performing for the state a duty not only as real but far more important than the artisan who is legally employed to build its bridges or to construct its highways. Why deny compensation to the one and not to the other? Let that mother who is devoting from nine months to one year of her time to the rearing of a future citizen of the commonwealth be relieved of material responsibility and be paid in actual cash for her services. This need not be regarded as chimerical but could, I believe, be put into practical operation and would redound to the good of the nation and would be a far more sensible expenditure of the public funds and certainly more humane than doled-out charity. Before legislators could be prevailed on to lend their influence to such a proposition the motherhood of the country and the profession are in urgent need of illuminating propaganda which would emphasize the advantages and possibilities of breast-nursing, the dangers and often the lack of the necessity for artificial feeding and the tremendous influence of the latter in maintaining the high-water mark of infant mortality. The burden of such a campaign of education is on that portion of the medical profession which is presumed to speak with authority on the matter of childen's diseases. I have appended the case histories briefly of a few of my personal experiences. They could be almost innumerably multiplied. Some appear commonplace and trite, but they teach a powerful lesson of the importance of breast-milk conservation. Each case lost to the breast adds its mite in influencing the sum total of the tremendous infant morbidity and infant mortality.

CASE 3.—Mrs. J., mother of four children, and healthy, refused to nurse because she said that her milk poisoned her last baby, causing its death. The present infant was immediately placed on artificial nourishment and finally passed through its first year after experiencing two severe attacks of spasms and one attack of severe digestive disturbance. This could have been avoided by breast-feeding.

CASE 4.—Mrs. M. had two children, both artificially fed. Both developed summer complaint and marasmus during the course of feeding, but finally recovered. The husband was a physician. The mother was told without reason that her milk was all water. She became pregnant again. From the day of conception, she was encouraged with reference to her ability to nurse her babe. After delivery intensity of moral support increased and she was well fed. Result: abundant milk-supply for ten months, and a healthy infant.

CASE 5.—Baby S., first baby, father a physician. Weight at birth 6½ pounds. Vomited every feeding. Bowels green and curded; anus excoriated. Mother very nervous. Diagnosis of probable pyloric obstruction made and advisability of weaning was being considered. Mother reassured. Pyloric obstruction eliminated. Milk contained high fat percentage. Mother dieted and purged. Told to ignore digestive symptoms. Small dose of strontium bromid and a little water administered before feeding. Baby continued to gain in spite of digestive symptoms, which gradually subsided. Present weight at six weeks, 10 pounds. Usual course in this case would have been to wean, with probable disaster on account of the approach of summer.

CASE 6.—Baby G., first infant. Mother well. Father a physician. Infant cried a great deal. Mother therefore convinced that she did not have enough milk and infant was starving. Very difficult to control. Finally convinced by actual weighing experiments before and after feeding and the progressive gain in weight.

CASE 7.—Baby L., father a physician. Had lost one infant from summer-complaint on bottle. Mother during puerperium had received an ounce of Epsom salt a day and besides had inverted nipples and small breasts. Rose from childbed weak, anemic and with flabby breasts. Flow appeared about to be leaving. Regular nursing advised, forced feeding, with oatmeal and Southworth's soup.[1] Return of flow was gradual and the gain in weight tedious. I refused to wean on account of summer. Mother very nervous. Both parents, against their better judgment, frequently threatened to give artificial food. Flow finally established. Result: a fat, healthy babe.

CASE 8.—Mrs. W., mother of two children. Very stout. Breast well developed, but not so much glandular substance. Confined with present baby in hospital. Permitted to get up on ninth day and to leave hospital on tenth day. Result: severe uterine hemorrhage. Rest in bed and forced feeding only partially restored flow of milk. Finally had to wean in summer. Result: severe intestinal disturbances. Final recovery. Remarks: Fault lay with the accoucheur. All trouble could have been avoided.

Thus, in a general way an attempt has been made to state the influences at work which have been responsible for the decadence of the habit of breast-feeding, and it would seem from my experience that the following conclusions are justifiable:

CONCLUSIONS

1. Breast-feeding is the only sane and safe method of infant-feeding.

2. The breast is too frequently sacrificed without cause.

1. Southworth's soup consists of 2 tablespoonfuls of yellow corn-meal boiled one-half hour with 1 quart of water. Water of evaporation is made up by addition of hot water. Whole is salted and flavored to taste. About 1 quart a day is drunk.

3. Psychic influences are largely determinable so far as the mother is concerned.

4. Fear plays an important rôle in the etiology of artificial feeding.

5. The two most common examples of fear depend on the mother's belief in her inability to provide suitable nourishment and on the signs of early indigestion which are erroneously regarded as a contra-indication to the continuance of breast-feeding.

6. The profession of the country has not been sufficiently educated in the methods of dealing with nutritional and digestive disturbances of the breast-fed.

7. Medical curriculums are lacking in such instruction.

8. Too much time has been spent in studying the problems of artificial nourishment without very much progress or benefit.

9. Physicians resort too quickly to artificial feeding.

10. Economic and social reasons for discontinuing the breast are the most difficult to overcome and find their origin in the present social system.

11. Charity is but a makeshift to relieve the present state of error. It is unnecessary and not humane.

12. A mutation of economic and social conditions, while offering relief, is remote.

13. In the interim nursing mothers should receive actual cash compensation from the state.

14. A campaign of education directed toward legislators, mothers and physicians is urgently needed and should be undertaken by the Section on Diseases of Children of the American Medical Association and the pediatric sections of allied organizations.

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ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: Most writers on the subject seem to agree that there are few mothers who are unable to nurse their babies. As an actual fact, I have great difficulty in private practice in keeping many babies on the breast, and I do not think that we can be as optimistic as Dr. Lowenburg that we can do this. I am excluding now any mother who has not enough to eat. I mean mothers of the better class who can pay for the best food and the best care. Many of them cannot nurse their babies in spite of all the psychotherapy that I can give and all the feeding methods that I can devise. The usual symptoms are acute indigestion and the baby does not thrive. The mother nurses the baby according to the ordinary rule. Nevertheless the baby does not thrive; it has severe dyspeptic symptoms that are not improved by lengthening the interval between feedings. What shall we do with these babies? They are very numerous. I have not been successful with these cases, and do not know anyone who has. I am collecting records of a large number of these cases which I hope some time to present. These babies are usually fed by supplemental or complemental feedings, and the mother soon finds that the baby does better, likes the artificial food better than the breast, and then she gives it more in spite of the doctor's advice. Why the mother's milk does not agree with the child we do not know.

When a mother asks my advice about putting her baby on the bottle, I say to her, "If you were going to have an operation performed on your baby in which there was a mortality of from 10 to 15 per cent. would you not consult several physicians before having to undergo the operation?" I then suggest that she consult two or three physicians before putting the baby on the bottle, since this has an equal mortality with an operation. We generally succeed in keeping these mothers from weaning the babies, but that does not always mean that the babies are fed.

DR. C. F. WAHRER, Fort Madison, Iowa: I do not believe that a certain class of Dr. Zahorsky's patients come under Dr. Lowenburg's classification. I want to make a plea for those mothers who want to nurse their babies and can do it, but for some reason have been ignorantly advised. Within the last six months I confined two sisters about three and a half months apart. They both had a "Sary Gamp" for a nurse. She told the first sister that she could not nurse her baby because the milk was too thin. A few days after my last attendance the husband came to me and said the wife's breasts were hard and large. I said, "Have you been removing the milk?" He said, "Yes," I said, "What did you do with the milk?" He said, "Threw it away." I said, "What do you feed the baby on?" He said, "The bottle." Now in such a case the doctor must make his moral influence felt. I told him that they must feed this baby on its mother's milk or do without my services. If patients want to follow the advice of "Sary Gamp," who maintains that she has raised thirteen children and for that reason should give advice (although she has lost seven of them), they can do without my services. I told this nurse that she must not interfere any more or I would show her the door.

The same thing occurred when the second sister was confined. They also had "Sary Gamp." I told the mother that if she did not nurse the baby I would not come to the house again. Both these mothers are nursing their babies and are happy.

DR. H. D. CHAPIN, New York: There seems to be some difference of opinion. There are some women who do wish to nurse their babies, but are physically unable to do so, although they are willing to follow all the directions that are given them.

DR. H. W. FRANCIS, Bancroft, Neb.: I live in a small town. I seldom have trouble in getting the mothers to nurse their babies. Occasionally we have a mother whose milk does not seem to agree with the baby. In my experience, the continued use of sodium citrate given to the baby at nursing time is often beneficial. I have continued this as long as three months without any harmful effect and it proves of benefit to the baby. It stops the colicky spells.

DR. L. R. DEBUYS, New Orleans: There is one thing that Dr. Lowenburg may have forgotten to mention which I think should be emphasized, namely, the care of the breast and the care of the nipples before confinement. It is absolutely essential. I recently saw a mother who was extremely anxious to nurse her baby. The baby was 11 days old. It was torture for her to try to nurse him, her nipples were so fissured. In a few days under the proper management the nipples were healed and she resumed nursing her baby without any pain or inconvenience. It is essential to have good nipples in order to have mental rest and effectual encouragement.

We meet two classes of mothers, those who want to nurse their babies and cannot, and those who do not want to and can. In the case of the latter I think that we are perfectly right in taking the position that Dr. Wahrer has taken. In those cases in which the mother wants to nurse her baby and cannot, my practice has been, if she is supplying a little milk which is not causing any digestive disturbance, to weigh the baby before and after nursing to determine what the baby is getting and make complemental feedings to meet the requirements. I have frequently found that the mother can nurse the baby for six or seven months in this way.

In an instance in which the mother was giving 4 ounces in twenty-four hours, by this method, in the course of three months she was giving 20 ounces of milk; the baby, of course, was having complemental feedings. Incidentally, the mothers in these cases were in good circumstances.

There is a tendency to wean the baby if the stools are not perfect, that is, are not normal custard stools. We must remember, in this connection, that it takes some weeks, two or three, sometimes a month, for the baby to become adapted to the breast and the breast to the baby.

I have had a rather unique experience in connection with an abscess of the breast. The breast had to be operated on. I allowed the baby to continue to nurse the healthy breast; and during the period when the diseased breast was being

treated surgically I used puppies to nurse it, and in this way kept the breast functionating. After the breast had entirely healed and there were no organisms in the milk, the baby was put back to that breast, which continued to functionate satisfactorily.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.: I have not found many mothers who do not wish to nurse their babies. Many mothers have not been taught that the mortality of bottle-fed babies is eight or ten times that of breast-fed babies. In my lectures to nurses I always emphasize the fact that there are but two contra-indications on the mother's part to nursing a baby. One is advanced heart disease, the other pulmonary tuberculosis. There are, of course, other occasional conditions in which we may, if necessary, advise weaning, but these two classifications will cover the great majority of cases.

I think also that physicians are frequently too careless in permitting mothers to wean their babies. We do not always sufficiently realize the difference, not only in the first year of life, but in later years, between breast-fed and bottle-fed babies. We all know that the death-rate among bottle-fed babies in the first year of life is much greater than among breast-fed babies, but we do not all realize the great influence breast-feeding has on the growth and development of children in the first five or ten years of life.

I saw some interesting statistics pertaining to this at the International Hygiene Exhibition in Dresden two years ago. In twenty-four families with one hundred and nine children, all breast-fed, at the end of at least five years of married life, not one of the children had died, while every one of the thirty-three families in which babies were all bottle-fed had lost one or more children during the same period.

Especially interesting were the results in families in which some of the children were breast-fed and some bottle-fed. In seventy-nine families of this class investigated there was a group of twenty-nine families with eighty-five breast-fed and one hundred and nine bottle-fed babies. At the end of eleven years all of the breast-fed children were alive and 57 per cent. of the bottle-fed babies were dead. In another group of thirteen families with forty-eight breast-fed and twenty-three bottle-fed babies, at the end of ten years all of the breast-fed babies were alive and all of the bottle-fed babies were dead.

We must not lose sight of these results of breast-feeding in infancy. The two main periods in which mothers wean their babies before the natural time for doing so are in the first month and in the fourth or fifth. The causes of weaning in the first month are vomiting, diarrhea, etc.

I often tell mothers that I do not care how many stools the baby has in the first month of life, whether one or two or twenty a day, nor how much the baby cries, provided it gains in weight. It frequently takes several weeks for a baby's stomach to adjust itself to mother's milk and during this time more or less gastro-intestinal trouble is bound to result. If the mother concludes that this is due to some imperfection in her milk and weans her baby on this account, a great mistake is made. I believe that the occasions when a baby should be weaned on account of some fault in the mother's milk are rare. When, after a thorough trial, it is found that a baby will not thrive on breast-milk, the fault is usually with the baby and not with the mother.

DR. FRANK C. NEFF, Kansas City, Mo.: I think that Dr. Lowenburg's criticism of the medical profession is well founded in many ways. It does not apply, however, to men who are practicing pediatrics.

A custom which I have followed, and which I understand from Dr. Smith is followed in Boston, is to secure the breast-milk whenever it can be obtained from healthy women. Often the mother is willing to nurse the baby, but she thinks that she has not enough milk and does not know what else to do but give it the bottle. In this case, it is my practice to give supplemental feedings: to find out how much the baby is getting by weighing it before and after nursing and then to get supplemental milk from relatives or friends or any healthy mother who has more milk than she needs. When this milk is not procurable in any other way I have resorted to advertising in the daily paper, offering to pay a healthy mother so much a week for so many ounces of milk, she to come to the house as often as necessary and have the milk drawn out to be kept on ice and used subsequent to each nursing—not to take the place of any nursing. The baby should be nursed at the breast as much as possible and then fed this breast-milk from the bottle. I should like to ask you to try this method. It is surprising what a small amount of breast-milk some babies thrive on. This will solve many problems in cases in which the milk is insufficient for complete feeding.

DR. E. O. BENSON, Chicago: In the great majority of cases, there is no difficulty in inducing the mother to nurse the baby. In fact, the great majority of mothers among the better classes are anxious to nurse their babies. They have heard that there is a large proportion of mothers who cannot nurse their babies, and they are afraid that they may be in that class.

Years ago, when percentage feeding was first introduced, it was thought that a panacea had been found, but experience has taught us that there is no substitute for mother's milk, and this knowledge has come to the reading laity. As Dr. Gengenbach mentions, the nursing possibilities of women are influenced by their mental emotions and by artificial surroundings. A large proportion of women among the poorer classes take it for granted that they should nurse their babies. They have nothing else to think of but the care of their houses, their husbands and babies. Some mothers have difficulty because they are underfed, others because they are overfed. We must avoid too rich food as well as too poor food. In certain rural communities in the old country, in which mothers eat sour milk, old bread and little butter, possibly meat once a week, and otherwise subsist on cereals and gruels, you will find a large proportion of healthy babies and a large proportion of mothers who are able to nurse their babies.

I do not believe that physicians are such great sinners as Dr. Lowenburg seems to intimate, but we must put this matter strongly to physicians in order that they may advise every mother to nurse her baby.

Some babies, even after the best efforts, must be put on artificial feeding. Dr. Lowenburg rather condemned the time spent in studying artificial feeding, but many babies come to us after they have been weaned without the advice of a physician. When we leave a case, after confinement for example, we tell the mother to come to us when the baby is in difficulty. She does not do it. She first takes the advice of the neighbors or the grandmother, and then, after the child's digestion has been damaged by experiment, she comes to the physician and he has to meet the problem of artificial feeding. The number of these cases is large and the physician is not responsible for them.

DR. H. LOWENBURG, Philadelphia: My experience does not permit me to agree with Dr. Zahorsky as to the inability of many mothers to nurse their babies, nor with the importance he places on the occurrence of dyspepsia in breast-fed babies. Possibly I meet just as many cases of indigestion and green stools in the breast-fed as he does, but I have come to regard them as of no importance and pay absolutely no attention to them. I meet green stools, curds and colicky babies, but, if the child continues to gain in weight—you will find that most of them do—I think that we should pay no attention to the character of the stools at all. I believe that from the cradle up infants require a little wholesome neglect. I think that they should not be fussed over too much. I think that we should pay less attention to the importance of dyspepsia in the breast-fed and think that all women with mammary glands can nurse. The patients that come under our observation who will not be able to nurse their babies will then become fewer in number. I do not say that women are not willing to nurse, but I do say that many of them are actuated by fear that they cannot, or that their milk does not agree with the child. It is important, as Dr. Zahorsky suggests, to

make a systematic study of the stools of the breast-fed, to learn, if possible, just why it is that these infants do have green movements, because I believe that almost every one of them does.

It is important that the breasts should receive attention during the whole puerperium. Every other physical defect of the mother should be noted and corrected as well.

Dr. Wahrer mentioned, as an etiologic factor in the discontinuance of breast-feeding, the interference of relatives. This is often carried to extremes, especially by those who have had little if any experience, as when a maiden aunt who never gave birth to a child advises against nursing. Trained nurses are often responsible for unasked-for advice which leads to a discontinuance of the breast-food. I should not tolerate any interference from the nurse in a matter of this kind. Feeding and the care of the breast is in the hands of the physician, and the nurse should know it from the beginning. I criticize both the pediatrist and the general practitioner. So many of these cases occur among the poor and ignorant. Their physicians actually profess to know nothing about breast-feeding and still less about bottle-feeding, and yet the first thing they do when they meet colic and green stools is to put the baby on some patent food. I think that this criticism of the general practitioner is just. I think that the reason he is at fault, and this is where the pediatrist deserves censure, is that the pediatrist sets him a bad example by being a little too much in a hurry to put the child on the bottle. I will not put a baby on the bottle without a good sound reason.

Dr. Chapin's proposition is a fair one. I usually get at the women psychologically as best I can. I start out with the proposition that they can nurse and explain to them the advantages which will accrue to their infant, themselves and their husbands. Then I convince them of the importance of weighing the child before and after nursing to demonstrate to them that they have enough milk. Weekly weighings are insisted on, not oftener, to show them that their babies are gaining. Sometimes I will admit that I cheat a little bit in the beginning and tell the mother the infant has gained even if it has not. I think it is best to do this in order to encourage her. Soon the gain is inaugurated in nearly every case. Then I study the milk. If I find any ingredient at fault I increase or diminish it by regulating diet, fluids, laxatives and exercise. I always flood them with water in the beginning whether the milk is good or bad. This increases the total quantity and aids the infant's digestion. The quality can be controlled later. I wish again to emphasize the importance of the psychic element. There is only one type of woman that occasionally appears to be practically hopeless, and that is the very fat woman who has more fat than glandular substance.

A THEORY OF THE CAUSE OF ECTOPIC PREGNANCY

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Various speculations have seemed to explain the cause of ectopic pregnancy because, as we shall see later, they contain an element of truth so far as based on secondary causes present in only a few cases. Webster[1] was the first to formulate a working hypothesis comprehensive enough to embrace most of the observed phenomena and sufficiently fundamental to be a means to furthering our knowledge of the cause, when he definitely stated that the ovum always embeds in Müllerian tissue. At the time he formulated this hypothesis he had in mind that ectopic pregnancy always originates as tubal pregnancy; that is, the ovum embeds in the tube and not in the ovary (ovarian pregnancy) or in the peritoneum (abdominal pregnancy); but later, after undoubted cases of ovarian pregnancy were observed, he explained them as due to the extension of Müllerian tissue into the ovary. This hypothesis of Webster's leaves still unexplained the cases of abdominal pregnancy believed by some authorities to occur; it also is too speculative by attempting to explain embedding at an abnormal site as caused by reversion of the tissue-cells through degeneracy.

In stating that the ovum always embeds, in cases of extra-uterine pregnancy, in anomalous embedding areas; that is, in specialized tissues which, when normally situated, are in the endometrium, I formulated a theory that explains the cause of ectopic pregnancy wherever it might be located.[2] Before proving this theory by submitting further evidence I shall review briefly our knowledge of the early stages of human pregnancy and look into the causes of ectopic pregnancy as stated by others.

Fig. 1.—Outline sketch of sections from a tube which contained a six weeks' ovum; the ovum was situated proximal to the diverticulum; *A*, transverse section taken from plane indicated at *B*.

KNOWLEDGE OF THE EARLY STAGES OF HUMAN PREGNANCY

No one has observed a human fertilized ovum before it has become embedded, and hence nothing is definitely known in regard to the ovum from the time of its discharge from the ovary up to the time of its nidation in the endometrium. The earliest embedded ovum found in the uterus is the one described by Hubert Peters.[3]

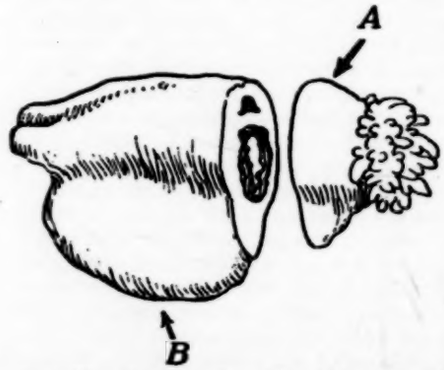

Fig. 2.—An outline sketch to show the relative size and situation of a large diverticulum which communicated with the main lumen near the fimbriated end. A small ovum was situated in the part represented at *A*. The diverticulum lies parallel to and below the main tube; it is much smaller at the isthmus where it again communicates with the main lumen; *B* indicates the ovary.

The external dimensions were 2.4 by 1.8 mm. and the internal dimensions 1.6 by 0.8 by 0.9. The embryo was 0.16 mm. in length. The uterus containing the embedded ovum was removed at necropsy within a few hours after death from a woman who had committed sui-

1. Webster, J. C.: Ectopic Pregnancy, New York, 1895; Study of a Specimen of Ovarian Pregnancy, Am. Jour. Obst., 1904, pp. 1, 28, 76; A Text-Book of Diseases of Women, Philadelphia, 1907.

2. Huffman, Otto V.: Ectopic Pregnancy Associated with Anomalous Fallopian Tubes, Surg. Gynec. and Obst., May, 1913.

3. Peters, Hubert: Ueber die Einbettung des menschlichen Eies und das früheste bisher bekannte menschliche Placentationsstadium, Leipsic and Vienna, 1899.

cide. The history of the case showed that thirty days had elapsed since the beginning of the last menstrual period, and that two days had elapsed since the omitted period. The age of this ovum was about fourteen days. It was apparently larger than an ovum from another case, aborted sixteen and a half days after cohabitation, and described by Bryce, Teacher and Kerr.[4] These ova, which had become securely embedded and which had been fecundated for a number of days, were not so very much larger than mature, non-fertilized ova in the ovary, the greater diameter of which is given as 0.25 mm. by Waldeyer, and as from 0.22 to 0.32 mm. by von Ebner.

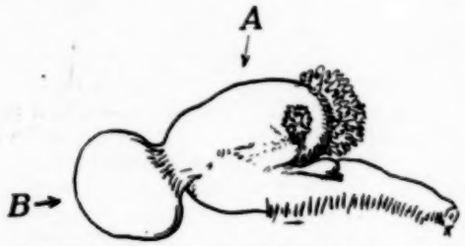

Fig. 3.—Tubal pregnancy in a malformed tube; *A*, situation of the ovum; an accessory ostium is present and below it there is a small cyst derived from the epoophoron; *B*, large cyst in the subserosa situated where the tube is curved back upon itself.

In the matter of computing the duration of gestations it should be kept in mind that we have no definite act or criterion which indicates the beginning of pregnancy. The act of insemination may be quite remote from that of fertilization because spermatozoa remain alive in the uterus and tubes for a number of days. Strassmann found human spermatozoa alive one week after coition and Bossi records a case in which they lived for more than twelve days. Dührssen[5] found living spermatozoa in a woman who stated that three and a half weeks had elapsed since having had coitus. Just when and where the spermatozoa fertilize the ova, that is, the most usual site for this meeting, no direct evidence yet shows. We know, however, that spermatozoa have been found in the fallopian tubes fifteen hours after the act of insemination, as in the case mentioned by Birch-Hirschfeld in which the woman had been fatally asphyxiated by gas during coitus. We also have the observations of Dührssen,

Fig. 4.—The tube from the opposite side of a case of tubal pregnancy. An accessory tube is attached to the broad ligament.

wherein he found motile spermatozoa in a fallopian tube removed at a surgical operation. Then, too, we have the cases of ovarian pregnancy and tubal pregnancy, which indicate that the spermatozoa must find their way into the tubes.

Granting, then, that the spermatozoa normally find their way into the tubes of women within a few hours after coitus, just as they do in the case of all other mammals, the next question to present itself is as to the manner in which the fecundated ovum is nourished prior to implanting itself in the endometrium; but here again we are without any absolute evidence. We do not know whether the tube is capable of furnishing nourishment by a secretion, nor do we know whether there is any secretion from the endometrium analogous to the uterine milk of some of the lower animals. On the other hand, we have evidence of the fertilized ovum influencing the maternal tissues as though by hormones, because the endometrium undergoes all the changes characteristic of pregnancy even though the fertilized ovum be retained in the tube.

If we should supplement the few observations which have been made in regard to human pregnancy with the great number which have been made on other mammals, we might safely conclude that fertilization usually occurs within the tube and that the fertilized ovum finds its way into the uterus within a day or two after becoming fertilized. We are discussing human pregnancy, however, and such analogies might only mislead us, because tubal or ovarian pregnancy, that is, primary ectopic pregnancy, does not occur in other mammals, although they are known to have extra-uterine pregnancy following rupture of the uterus. Bland Sutton,[6] who is the leading

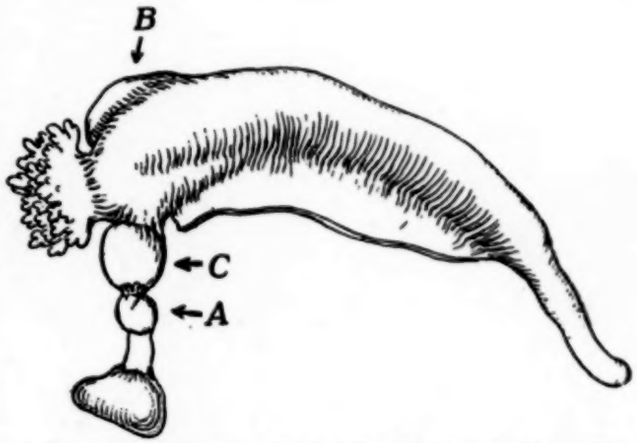

Fig. 5.—Tubal pregnancy in a malformed tube; *B*, the swelling caused by the ovum; *C*, a small cyst to which is attached an accessory tube. *A*, fringe of fimbriae which surrounds the constriction where the cyst and accessory tube are joined. Attached to the dependent end of the accessory tube there is a cyst of irregular shape.

authority on this subject, has clearly shown that ectopic pregnancy in animals is caused by rupture of the uterus and is not due to implantation in the oviducts, except possibly in the one case in an ape observed by Waldeyer.

THE ALLEGED CAUSES OF ECTOPIC PREGNANCY

Since the majority of ectopic gestations occur in the tube, most of the theories as to the cause of this most interesting pathologic condition have been based on interference with the mechanics of the passage of the ovum from the ovary to the uterus. This interference might arise from:

1. Obstruction to the passage of the ovum.
2. Defective propelling forces.
3. An abnormal ovum.

Obstruction

Those observers who have reported ectopic pregnancy as being caused by an obstruction have found malforma-

4. Bryce, Teacher, and Kerr: Contributions to the Study of Early Development and Imbedding of the Human Ovum, Glasgow, 1908.
5. Dührssen: Lebendige Spermatozoen in der Tube, Centralbl. f. Gynäk., 1893, p. 592.
6. Sutton, J. B.: Surgical Diseases of the Ovaries and Fallopian Tubes Including Tubal Pregnancy, Philadelphia, 1891. The Purvis Oration on Abdominal Pregnancy in Women, Cats, Dogs and Rabbits, Lancet, London, 1904, ii, 1625.

tions of the tube, myomas or inflammatory conditions. Offsetting these findings are the results of the experiments conducted by Tainturier, Mandle and Schmidt, who ligated the oviducts of rabbits after fertilization, with the object of obstructing the passage of the fertilized ovum, but who never succeeded in producing ectopic pregnancy. One of the most interesting conditions which may affect the passage of the ovum is that described by Landau and Rheinstein,[7] and J. W. Williams.[8] These authors a number of years ago called attention to diverticula of the tube as being a possible cause, in a purely mechanical way, of ectopic pregnancy.

Figs. 6 and 7.—Photomicrographs (×15). Transverse sections of accessory tubes which prove their character by the typical arrangement of the mucosa in folds.

Likewise, Schatz mentioned accessory ostia as making a vortex in the currents set up by the cilia, which served to hinder the progress of the ovum in its transit through the tube. He based his vortex theory on a case of ectopic pregnancy situated in an abnormal double tube with triple communications between the two tubes, which he believed to have caused a vortex that hindered the progress of the ovum. In this connection, I wish to call attention to the fact that Werth,[9] in discussing this theory of Schatz, suggested that a tube with accessory ostia might possibly be predisposed to ectopic pregnancy. Richards, who was the first to describe accessory ostia, suggested that the ovum might drop out of such ostia and result in ectopic pregnancy. Herzog[10] studied thirty specimens of ectopic pregnancy from which he concluded that anomalies were a factor, but only as causing an obstruction. He hinted at very vital conditions, however, when he directed attention to menstruating tubes as an anomaly. Henrotin and Herzog[11] described a case of pregnancy in a blind accessory ostium. Sänger[12] likewise reported such a case.

Defective Propelling Forces

Those who have reported that the propelling forces were defective believe that inflammation destroyed the epithelium. This theory was started many years ago by Lawson Tait. Subsequent observers and students such as Opitz, Micholitsch and Werth after finding inflammatory lesions in many cases of ectopic pregnancy have accepted that theory, while other students of the pathology of ectopic pregnancy, such as Kermauner and Williams, hesitate. Students of the pathology of ectopic pregnancy have never given inflammation, as a causative factor, the place that the clinicians have; for the inflammation does not necessarily interfere with ciliary motion, and inflammation in the endometrium, the normal tissue for embedding, is a most certain cause of sterility. In considering this theory of the lack of ciliary motion as being the cause of tubal pregnancy, it should be borne in mind that Lawson Tait proposed it at a time when the uterus was supposed by many to be free of cilia. In view of our present knowledge of ciliated epithelium both in the uterus and the tubes, I suggest that, if the cilia normally prevent embedding in the tubes, they should also prevent embedding in the uterus. J. W. Williams, in studying the possibility of lack of cilia being the cause of tubal pregnancy, was able to find cilia in all his specimens of tubal pregnancy, and Zedel, who also studied this question, saw the cilia in motion in several fresh specimens which he examined.

Assuming that the tube normally undergoes movements favoring the passage of the ovum into the uterus, conditions which might interfere with such movements would be hyperinvolution, either puerperal or as due to lactation; ovarian tumors, and psychic conditions affecting the tubes reflexly.

Fig. 8.—Tubal pregnancy, accessory ovary, main ovary.

Abnormal Ovum

Those who have believed the ovum to be abnormal have sought evidence in an inflammatory condition of the ovary which, according to their theory, would result in the discharge of ova without the power of motility that they assume the ova to possess. Of course, this is pure conjecture on their part.

7. Landau and Rheinstein: Beiträge zur pathologischen Anatomie der Tuben, Arch. f. Gynäk., 1890, xxxix, 273.
8. Williams, J. W.: Contributions to the Normal and Pathologic Histology of the Fallopian Tubes, Am. Jour. Med. Sc., 1891, cii, 377; Obstetrics, New York, 1911.
9. Werth, R.: Die Extrauterineschwangerschaft, in Handbuch der Geburtshülfe, Bd. ii, Teil ii, Wiesbaden, 1904.
10. Herzog, M.: The Pathology of Tubal Pregnancy, Am. Jour. Obst., 1900, xlii, 145.
11. Henrotin and Herzog: Anomalies du canal de Müller comme cause de grossesse ectopique, Rév. de chir. abdom., 1898; Very Early Rupture in Ectopic Pregnancy in a Diverticulum, New York Med. Jour., Oct. 21, 1899.
12. Sänger, M.: Conception durch ein accessorisches Tubenostium; Kaiserschnitt, bedingt durch frühe ectopische Schwangerschaft, Monatschr. f. Gynäk., 1895, i, 21.

In regard to abnormal ova, however, it is interesting to note that Robert Barnes, who was one of the earliest students of ectopic pregnancy, observed the great frequency of twins in tubal pregnancy, and that Parry confirmed his observation. In fact, the latter found that twins occur four times more frequently in tubal pregnancy than in normal pregnancy, an explanation being that a large twin ovum or abnormal ovum unable to pass through the tube embeds in it. In two cases of ectopic pregnancy which have come under my own observation there is a history of a previous twin birth. This idea is similar to the theory advanced by Sippel that the ovum, in transmigrating across the abdominal cavity from one ovary to the tube on the opposite side, consumed sufficient time to permit the growth to advance to such a degree that it would be unable to pass through the oviduct. In considering the abnormal ovum theory it should be observed that Mall has shown that 7 per cent. of all uterine pregnancies terminate in pathologic ova, that 50 per cent. of the aborted ova are abnormal, that 96 per cent. of the few unruptured tubal pregnancies which he has studied proved to be pathologic, that forty-seven out of eighty-seven tubal-pregnancy fetuses were deformed and that twelve of these eighty-seven fetuses were monstrous and only eight certainly normal. Although this evidence is very striking, the theory does not explain cases of ectopic gestation which have endured to term and have produced normal infants removed by operation.

There is one conjecture hinted at by the embryologists, which may be mentioned here; that is, the possibility of toxic embryotrophy being supplied by the tube. This presupposes that the ovum under normal conditions is nourished by a secretion of the tube. A poison secreted by the tube might have the same influence as physicochemical means have, when used by experimenters to produce monsters from the eggs of marine animals. Drugs or unknown conditions affecting the secretion of the tube might possibly be the remote cause.

Werth, Couvelaire,[13] Williams and nearly all observers have been able to find in tubal pregnancy a confirmation of Hubert Peters' findings in the case of normal pregnancy, but not all authorities agree as to the occurrence of a definite decidual membrane in a pregnant tube. Small areas of decidual cells may be seen, but a definite decidual membrane has never been found. Such areas of decidual cells have been observed by Williams, Webster and Couvelaire. An important observation is that of the occurrence of decidual cells in the tube opposite to the one in which the gestation has occurred. Such observations have been made by Webster, Mandle, Goebel, Janot, Krömer and Williams. Embryologists and present-day students of the decidua believe the decidual cell to be protective to the maternal organism against the too aggressive invasion by the trophoblast of the ovum. Hubrecht in his studies of the hedgehog, Webster and Bryce, Teacher and Kerr in man have emphasized their belief in the protective nature of decidual cells.

This phase of the study of tubal pregnancy has been greatly hindered by the fact that 78 per cent. of tubal pregnancies terminate in tubal abortion; and here the same phenomenon occurs as when abortion takes place in the uterus, namely, hemorrhage. This hemorrhage is so extensive that it destroys the ovum to such an extent that many specimens are rendered worthless for study. This fact, taken together with the fact that the other 22 per cent. terminate in rupture of the tube, points out very clearly the difficulties of studying this question of the occurrence of true decidua. The very early cases never reach us, because the embryo is extruded into the abdominal cavity and is absorbed—the disturbances not being severe enough to cause surgical intervention. In later cases, when an ovum undergoes death or is extruded from the tube and is too large to readily undergo absorption, suppuration may ensue. Such cases may account for some of the ectopic pregnancies which have occurred in pyosalpingitis as described by Hirst. Then, too, extra-uterine gestations have been found to be subject to all the diseases that may occur in intra-uterine pregnancy, that is, hematoma mole, hydatidiform mole and hydramnios, or to be associated with chorio-epithelioma and eclampsia.

Webster's Theory

In 1895 J. Clarence Webster reviewed all the important literature on ectopic pregnancy and pointed out that the various explanations up to the time of his writing had been conjectures only. He, on the other hand, was able to formulate a theory which was a beginning in the right direction. Webster came to the conclusion that the ovum always embeds in Müllerian tissue. He demonstrated

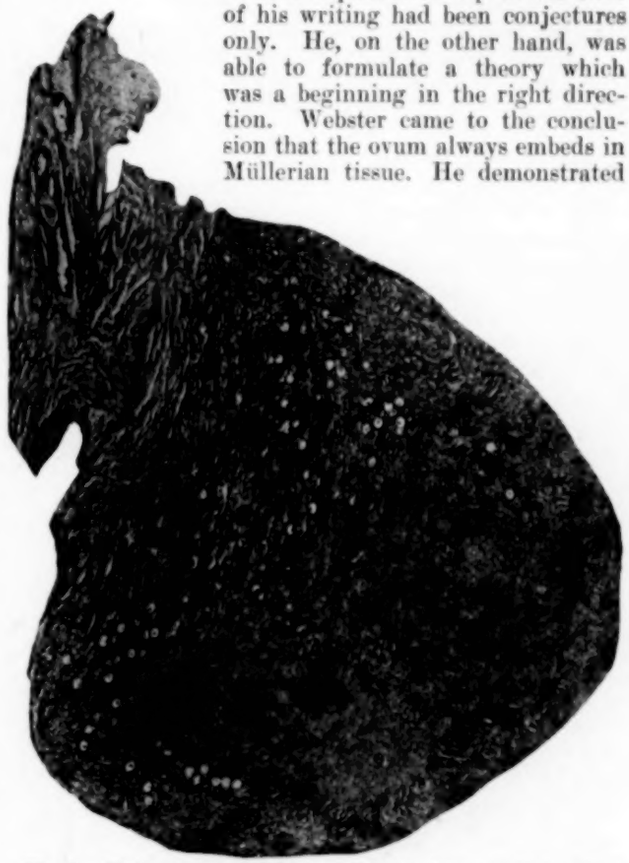

Fig. 9.—Photomicrograph (×20). Section from accessory ovary represented in Figure 8.

decidual reaction in nearly all of his cases and advanced the view that the ovum could develop only in tissue capable of undergoing such a genetic reaction. His theory, which served as a working hypothesis for all subsequent investigators, brought out the fact that the ovum does not embed in the peritoneum as once supposed. When a number of cases of ovarian pregnancy had been undoubtedly proved, namely, those described by Van Tussenbroek,[14] Thompson and others, it was thought that Webster's theory would become valueless. He soon showed, however, that Müllerian tissue might extend into the ovary. His observations were confirmed by those of de Sinety, Melassez and J. W. Williams, all of whom

13. Couvelaire, A.: Etudes anatomiques sur les grossesses tubaires, Paris 1901.

14. Van Tussenbroek, C.: Un cas de grossesse ovarienne, Ann. de Gynec., 1899, III, 537.

demonstrated the extension of Müllerian tissue into the ovary. Webster in his theory as to the cause of ectopic pregnancy laid emphasis on the fact that it always embeds in Müllerian tissue capable of undergoing the genetic reaction, and he later mentioned that it was doubtless the special genetic action in areas of decidua-like cells such as found by Schmorl in the ovary in normal pregnancy which might determine embedding in the case of ovarian pregnancy. Small areas of cells

Fig. 10.—Tubal pregnancy in a malformed tube. An elongated accessory tube is attached to the main tube.

similar to decidua cells have been observed under the peritoneum in normal pregnancy and they have been termed decidual nodes. Webster's theory is, then, that implantation occurs at an abnormal site because certain cells there, originally derived from the Müllerian duct, have, through degeneracy, reverted and again acquired their decidual-reacting or genetic property.

THE ANOMALOUS-EMBEDDING-AREA THEORY

I observed and described a very remarkable specimen of ectopic pregnancy removed at necropsy. I was able to examine and study the entire uterus as well as both tubes and ovaries with a view to finding some confirmation of the inflammation or obstruction theories. My results were negative. I found, though, two super-

Fig. 11.—Tubal pregnancy with rupture and hemorrhage. The chorionic villi protrude from the rupture; the tube is greatly dilated by blood-clot; the fimbriae are edematous. This is a common type of specimen.

numerary but rudimentary fallopian tubes, one attached to each of the fully developed, apparently normal tubes; which enabled me to offer an explanation for the tubal pregnancy. Starting with the fact that each tube was congenitally malformed, as indicated by the supernumerary tube, I inferred that early in the embryologic development of the individual there was a duplication of the Müllerian ducts, and that with the subsidence in the growth of one pair, those portions which should have formed a second uterus, with all the factors that determine an implantation area, became fused as "rests" with the walls of the tubes which went on to full development, and that such a rest permitted the ovum to embed. Keeping this explanation in mind, I took as a working hypothesis that ectopic pregnancy is determined by an anomalous embedding area. I called attention to the mutual physiologic relation of fecundated ovum to embedding area and referred to the localization of placentation or embedding areas in the uteri of some of the lower animals, as, for instance, the cotyledonary burrs in the virgin cow and the *coussinets* of Hollard in the virgin rabbit. Not being able to recognize in the morphologic details of such areas anything that characterized the special tissue or factor essential to embedding, I could not support my hypothesis by direct evidence, so I set about to examine a large number of specimens of ectopic pregnancy with a view to finding some gross anomaly or malformation which would point to the probable misplacement of embedding tissue during the

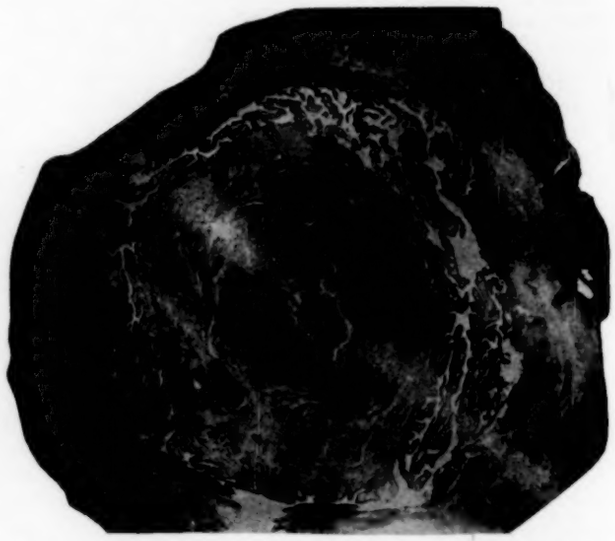

Fig. 12.—Photomicrograph (×4). Transverse section of a fallopian tube distal to the attachment of the ovum. The anomalous condition of a tube within a tube. The tube in the center has a thick muscularis which is surrounded by mucosa thrown into folds which project into the circular lumen. The outer wall of the circular (outer) lumen is composed of mucosa, and, in turn, a muscular layer. The central lumen is lined with normal mucosa. The central lumen ends blindly near the isthmus.

maldevelopment. Out of twenty-four specimens of tubal pregnancy removed by operation, only nine could be examined with certainty for minor anomalies. The other fifteen specimens were too extensively damaged by the large size of the gestation, the rupture or adhesions, to determine positively whether or not an anomaly existed. Of the nine that could be examined I found one with four accessory ostia, one with an accessory ostium, two with accessory tubes attached to the broad ligament and one with accessory ovaries. Two of the specimens which did not show an anomaly were accompanied by the tubes from the opposite side that had been removed at the time of the operation for the ectopic pregnancy. One of these non-pregnant opposite tubes had an accessory ostium and the other one was short and rested on a parovarian cyst. Of the remaining three apparently normal tubes, one was associated with an ovarian cyst 5 cm. in diameter, evidently derived from the rete ovarii.

In addition to reporting these findings, I also applied this hypothesis to an interpretation of a very early tubal pregnancy described by Rubin.[15] In Rubin's specimen a very small ovum was found embedded in the tube, proximal to a thickened muscular spur that, in turn, was proximal to a diverticulum of the tube. Rubin regards the spur as having arrested the ovum before it even reaches the diverticulum. His explanation seems too

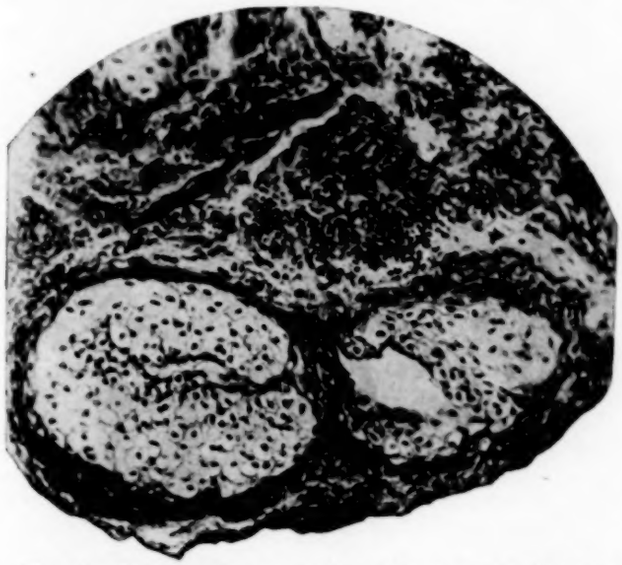

Fig. 13.—Photomicrograph (×250). Nest of decidua-like cells found in the wall of a tube near the peritoneum. The cells seem to be arranged around an endothelial lining which they have crowded in and they seem to have partially obliterated a lumen or space.

simple; with my hypothesis in mind the spur and diverticulum should be regarded as evidence of maldevelopment. Likewise in a case of ovarian pregnancy described by Graham,[16] in which a remnant of fallopian tube was found in the ovarian mass, I probably should regard it as a malformation or ingrowth of Müllerian tissue into the ovary, while Graham believes it to have been twisted off and separated from the tube by the growth of the ovum.

Further Evidence

It is in support of my theory that I wish to report further evidence. Before doing so I shall review in logical sequence certain findings which permit approach by steps, as it were, to the theory of an anomalous embedding area.

1. Mauriceau and others have described cases of pregnancy in a rudimentary horn of the uterus.

2. Kehrer has collected eighty-four cases of cornual pregnancy from the literature, in 78 per cent. of which there was no communication between the rudimentary horn and the fully developed horn, the pregnancy having been the result of the transmigration of either the spermatozoa or the fertilized ovum to the rudimentary horn.

3. Henrotin and Herzog, and Sänger have described cases of ectopic pregnancy situated in blind accessory fallopian tubes.

4. Cases of ectopic pregnancy associated with accessory tubes and ovaries have been described by me.

I have examined sixty-eight specimens of tubal pregnancy. In each one I looked for an obstruction, signs of inflammation, and evidences of maldevelopment. In none could I find an obstruction. Some showed mild grades of inflammation which were readily accounted for by the invasion of alien cells and the hemorrhage. I found malformations in thirty-seven specimens:

Six had large irregular diverticula which could not have been caused by the growth of the ovum (Figs. 1 and 2).

Five had accessory ostia (Fig. 3).

Three were associated with anomalies of the opposite tube (Fig. 4).

Two presented such an anomaly as represented in Figure 5.

Two had accessory ovaries (Figs. 8 and 9).

One had an anomalous tubule attached to the broad ligament.

Five had accessory tubes (Fig. 10 and Figs. 6 and 7).

Nine were simple dilatations of the tube by the growth of the ovum (Fig. 11).

One showed a most unusual anomaly, a tube within a tube (Fig. 12).

Three showed nests of decidua-like cells (Fig. 13).

All of the anomalies found were examined microscopically in order to prove definitely their exact nature.

In none of the specimens was I able to find a true decidual membrane. When the ovum was still *in situ* it was found embedded beneath the mucosa which, with the blood-clot, covered it on the side next to the lumen of the tube, while on the side next to the muscularis it was attached to a rich layer of cells derived from the trophoderm which had invaded the maternal tissues. These cells and the secondary inflammation caused by them gave an appearance, in some cases, that might readily have been mistaken for tuberculous inflammation, which in former years was given quite a place as a cause of ectopic pregnancy. In recent years less has been written about tuberculous inflammation as a cause of ectopic

Fig. 14.—Cross-section of an accessory tube attached to the broad ligament of a tube which had a nest of decidua-like cells near its peritoneal surface.

pregnancy, and I take this to be due to our better knowledge of the cells derived from the trophoblast, of the syncytial cells and of foreign-body giant-cells.

We also have more knowledge of the membrana decidua compacta, which we now know not to occur as a regular distinct membrane in a pregnant tube. I could find no true decidua in any of my tubes. In three there

15. Rubin, I.: Early Ovum in a Fallopian Tube. Proc. New York Path. Soc., 1912, xii, 107.
16. Graham, G. S.: A Case of Ovarian Pregnancy, Jour. Med. Research, 1912, xxvi, 499.

were some small nests of cells that appeared to be identical with the decidual cells of the compact layer in a pregnant uterus (Fig. 13). In one specimen such a nest was found in at the very site at which the ovum was attached to the maternal tissues.

Finally, then, I have examined sixty-eight specimens of tubal pregnancy, and with the difficulties of examining torn and sometimes incomplete material, and with the task of distinguishing shreds of tissue, chorionic viili, blood-clot, etc., I have found malformation in 54 per cent. of them. This evidence, besides the negative findings in regard to any obstruction or inflammation, is sufficient to warrant the establishment of the anomalous-embedding-area theory, the most logical of all the explanations for ectopic pregnancy. It is the most logical because it rests primarily on the mutual relation of fecundated ovum and embedding site. The other theories, with the exception of Webster's, lose sight of this very essential mutual relation which obtains in the normal physiology of embedding. The theory of anomalous embedding-area is not out of harmony with all the facts, both clinical and pathologic. It is not illogical like the inflammation theory; inflammation which is a recognized cause of non-embedding in the uterus, becomes, according to this inconsistent theory, an auxiliator of embedding outside of the uterus! Nor is it illogical like the obstruction theory, according to which, if it were consistent, a fecundated ovum caught in the cervix uteri or vagina should go on and embed there!

I am grateful to Dr. F. C. Wood, director of laboratories at St. Luke's Hospital and director of cancer research in Columbia University; to Dr. W. C. MacCullum of the Department of Pathology and to Dr. E. B. Cragin of the Department of Obstetrics for material assistance in carrying on this research.

Since this paper was prepared Theodore, Doederlein and Herzog[17] have reported a case of ectopic pregnancy in an adenomyoma uteri; and Dr. Charles A. Bentz of the University of Buffalo has shown me a uterus covered in part by mucosa exactly like the endometrium, with the glands opening freely into the peritoneal cavity.[18]

Education Building.

17. Theodore, Doederlein and Herzog: Surg. Gynec. and Obst., January, 1913.

18. In addition to the references already given, the following will be found interesting in this connection:

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Broman, I.: Normale und abnorme Entwicklung des Menschen, Wiesbaden, 1911.
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Frank, R. T.: Advances in the Pathology of Gynecology and Obstetrics, Am. Jour. Obst., December, 1910, p. 1070.
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Huffman, O. V.: A Malformation of the Fallopian Tube, Surg., Gynec. and Obst., December, 1912.
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ISOLATION OF A NEW VASOCONSTRICTOR SUBSTANCE FROM THE BLOOD AND THE ADRENAL CORTEX

PRESENCE OF THE SUBSTANCE IN THE BLOOD AND ITS ACTION ON THE CARDIOVASCULAR APPARATUS

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In the course of some investigations on the effect of Eck's fistulas on dogs, about three years ago, we were impressed by the fact that the dehepatization or extirpation of the liver, after an anastomosis had been established between the vena cava and portal vein of such animals, was followed by a train of symptoms very much resembling those of poisoning by digitalis-like bodies; namely, high blood-pressure, powerful cardiac stimulation and often a final standstill of the heart in systole. It occurred to us that these symptoms might be due to some substance normally present in the blood which is destroyed by the liver and is found in the blood in larger quantities after extirpation of that organ. We therefore attempted to isolate the substance responsible for such an action from normal mammalian blood, in the following manner:

Defibrinated blood or serum of oxen and pigs was treated with dehydrated powdered sodium phosphate or sodium sulphate. The dry mass was finely pulverized and extracted with water-free chloroform. This chloroform extract was evaporated to dryness and then treated with absolute methyl alcohol. On evaporation, a white crystalline residue was obtained, very sparingly soluble in water, but freely soluble in chloroform, acetone, hot ethyl alcohol and other organic solvents. Study of the action of this substance on the blood-vessels of cold and warm-blooded animals and on the heart led to extremely interesting observations. We found that it was a powerful vasoconstricting agent, a minute quantity (1/300 mg.) producing a marked and long-lasting (over an hour) constriction of the vessels of a frog's hind legs by the method of Trendelenburg,[1] and of the rabbit's ear by the method of Pissemski.[2] Studying the action of the substance on the frog's, terrapin's and toad's heart we found that very small quantities dissolved in Locke's solution exhibited an action similar to that of the digitalis bodies. At first there is noted a marked increase in the force of contraction both of auricle and of ventricle. The volume-output and tonicity of the heart-muscle is augmented. The rate is slowed. Stronger solutions produce toxic effects, characterized by irregularity of heart-beat, very marked slowing and tendency to systolic standstill. The output of the heart during this period is decreased.

The stimulating effect previously mentioned was even more strikingly noticeable in hearts which had been injured or were in poor condition at the beginning of the experiment.

By exactly the same method as we isolated the substance from ox's and pig's blood, we extracted a similar substance from human blood-serum. It was found that the quantity of extract corresponding to 1 c.c. of human-serum diluted with 500 c.c. of Locke's solution was sufficient to produce a very marked constriction of the rab-

1. Trendelenburg: Arch. f. Exper. Path. u. Pharmakol., 1912, lxiii, 161.
2. Pissemski: Russk. Vrach, 1912, No. 8, p. 264.

,it's blood-vessels, which showed that the substance must be present in quite an appreciable amount in normal blood. The physiologic effects of the substance extracted from blood-serum is shown in the accompanying table.

ACTION OF OX-SERUM EXTRACT ON THE BLOOD-VESSELS OF THE HIND LEGS OF THE TOAD, BUFO AGUA

	No. Drops Per Min.
Perfusion with normal Ringer's solution	22
1 c.c. of Ringer's solution with a minute quantity of serum extract injected.	
1 minute later	16
3 minutes later	10
5 minutes later	9
10 minutes later	7
15 minutes later	7
20 minutes later	7
25 minutes later	8
30 minutes later	8
45 minutes later	10
60 minutes later	10

Not only were we able to extract the substance from blood-serum, but we also obtained it from blood-plasma (citrate and fluorid) and from red blood-cells, by treating them according to the same method.

It has been known for some time that the blood-serum and the defibrinated blood of various animals exert a vasoconstricting action on the blood-vessels of isolated organs.[3] With the discovery of epinephrin this vasoconstrictor effect was ascribed to that body. Recent observations, however, by O'Connor, Stewart and Zucker, and others, show conclusively that systemic blood, with the exception of blood from the adrenal veins, does not contain epinephrin, and O'Connor[4] was the first to suspect the presence of another vasoconstricting substance in the blood. An attempt to study the properties of that substance was made by Zucker and Stewart,[5] who showed that it was not destroyed by alcohol, and these authors supported the idea that it may be liberated in the serum by the breaking down of blood-cells during the process of coagulation. Kaufman[6] in a recent publication is also inclined to this view and furthermore asserts that the body is easily soluble in water, but is insoluble in alcohol and ether, that it freely dialyzes, and is therefore not a protein, and that it is not destroyed by heat.

Our work on this subject and the isolation of the crystalline substance already described, together with a study of its chemical, physical and physiologic properties, justifies us in regarding it as a substance with a pharmacologic action different from epinephrin or from any other body hitherto obtained from the blood. That it is epinephrin is absolutely excluded by its method of preparation, its entirely different solubility in water and organic solvents, and also its different though similar pharmacologic action—a much longer lasting vasoconstriction and very powerful cardiac stimulation. Neither is it identical with beta-iminazolyl-ethylamin recently isolated by Barger and Dale from the intestinal wall, and suggested by Kaufman as being perhaps responsible for the vasoconstricting action of serum.

While we have not yet been able to isolate enough material for a complete chemical analysis, all the observations so far made by us on the physical and chemical properties of the body seem to point to its relation to cholesterin on the one hand and to the cortex of the adrenal gland on the other, as shown in the following section.

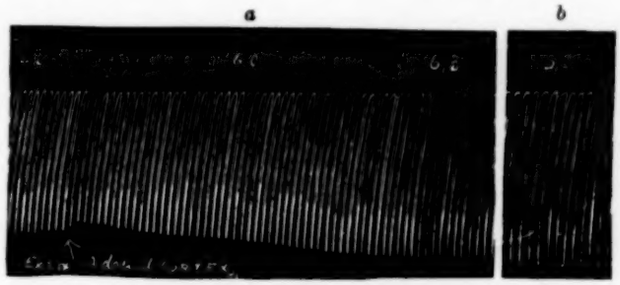
3. Ludwig and Schmidt: Ber. d. Sachs. Gesellsch. f. Geburtsh., z. Leip., xx, 12. Mosso: Ibid., xxvi, 305. Bernstein: Arch. f. d. ges. Physiol. (Pflüger's), xv, p. 575. Stevens and Lee: Studies from the Biol. Lab. Johns Hopkins Univ., iii, 99.
4. O'Connor: Arch. f. exper. Path. u. Pharmakol., 1911, lxvii, 195.
5. Stewart and Zucker: Jour. Exper. Med 1913, xvii, 152.
6. Kaufman: Centralbl. f Physiol., 1913 xxvii, 527.

That this substance may be of considerable clinical importance is not unlikely, in view of the observations of Gubar,[7] who noted that the vasoconstricting properties of blood-serum vary in different pathologic conditions, being increased in nephritis, for instance, and diminished in others.

NEW CRYSTALLINE PHARMACOLOGIC AGENT FROM THE ADRENAL CORTEX

It was shown in the foregoing that it is possible to isolate from the blood of man and other mammals a substance the nature and properties of which compel us to regard it as a lipoid and closely related to cholesterin. While we were working with that body the idea suggested itself that its presence in the blood may be due to the activity of some gland with an internal secretion. From the studies of Aschoff, Biedl and others we were impressed by the large content of cholesterin esters present in the adrenal cortex, which, moreover, is the only tissue in which cholesterin esters are accumulated to any extent.[8] This stimulated us to examine the adrenal cortex for the presence of substances similar to the one we have been studying.

Fresh adrenal glands of oxen were carefully freed from superficial fat and connective tissue. The cortex of each gland was then very carefully dissected and separated from the medulla. The tissue was ground up and desiccated by means of dehydrated sodium phosphate in the



Frog's heart; perfusion method; down stroke = systole, upper line = time in seconds; figures = volume output per minute in cubic centimeters. Note increase in tonicity and volume output in *a*; marked slowing of rate in *b*, and consequent decrease in output of heart (ten minutes later).

manner already described. The dry mass was finely powdered and treated with water-free chloroform, the chloroform extract evaporated and the residue taken up in absolute methyl alcohol. After repeated recrystallization a body was obtained consisting of white platelets with a fatty luster and a melting-point of about 50 C. (122 F.). It was very sparingly soluble in water but freely soluble in chloroform and hot ethyl alcohol, and also soluble in acetone and petroleum benzin. None of the physiologic properties of this substance were changed by boiling with weak alkalies, which excluded absolutely the possibility of its being epinephrin, which, as is well known, is not a product of the cortex but of the medulla. On the other hand, the pharmacologic action of the adrenal cortex extract was in every way identical, so far as studied, with the substance described, obtained from blood-serum, as described before. It was found to have the same vasoconstricting effect on the blood-vessels of frogs and rabbits, and the same digitalis-like action on the frog's and mammalian heart (see tracing). Furthermore, both the adrenal-cortex extract and the blood-serum extract exhibited a similar toxic action when injected subcutaneously or intraperitoneally into mice.

7. Gubar: Russk. Vrach., 1913, No. 20, p. 725.
8. This is true only of physiologic conditions.

As the function of the adrenal cortex has so far been a complete mystery, the isolation of the above-described crystalline principle and its relation to the vasoconstricting body of the blood is of especial interest.

A full account of our work will be published later in the *Journal of Pharmacology and Experimental Therapeutics.*

ACCIDENTS IN TRANSFUSION

THEIR PREVENTION BY PRELIMINARY BLOOD EXAMINATION: BASED ON AN EXPERIENCE OF ONE HUNDRED TWENTY-EIGHT TRANSFUSIONS *

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Accidents following transfusion have been sufficiently frequent to make many medical men hesitate to advise transfusion, except in desperate cases. It has been our opinion since we began making observations on this question in 1908 that such accidents could be prevented by careful preliminary tests, leading to the exclusion of agglutinative or hemolytic donors. Our observations on over 125 cases have confirmed this view and we believe that untoward symptoms can be prevented with absolute certainty.

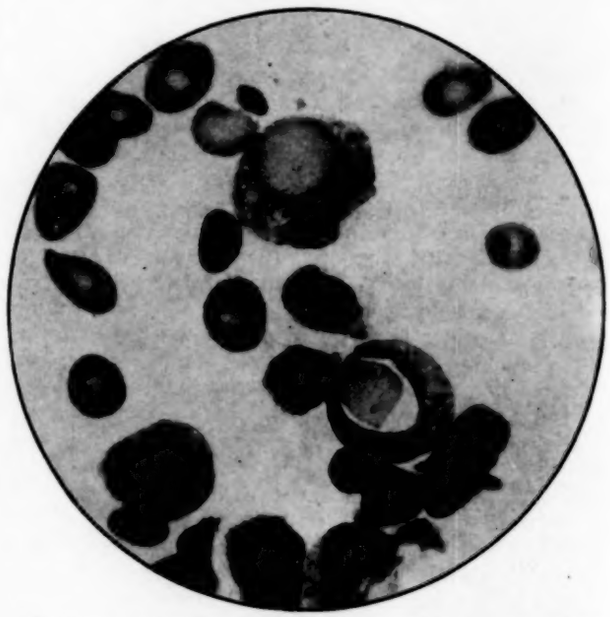
It has been the general impression that preliminary blood-tests ought to be done to determine the compatability of the donor's with the patient's blood, but there has been little direct observation as to the correspondence between the test-tube phenomena of agglutination and hemolysis and symptoms arising after transfusion.

Scattered reference to the hemoglobinuria following transfusion have made it clear that the occurrence of hemolysis between the donor's and patient's blood is a real danger. Thus, Flörcken[1] reports hemoglobinuria in two out of five cases which he transfused, and Gray[2] reports hemoglobinuria in one out of three transfused cases. Suttner,[3] reporting four transfusions, says: "One case resulted fatally from hemolysis, which might have been prevented had not its urgency required prompt action." Pool[4] reports a case of delirium and extreme jaundice following transfusion. In the case of Pepper and Nisbet,[5] a fatal hemoglobinuria followed a second transfusion for pernicious anemia. Cases have been reported by Crile,[6] Watts[7] and others. Rehling and Weil[8] report a case with severe hemoglobinuria which was anticipated by blood-tests. Undoubtedly many other cases that have occurred have never been reported.[9]

The question whether or not interagglutination is a danger in transfusion is still an open one. Our experience leads us to believe that its occurrence under certain circumstances may vitiate the result of transfusion and should be avoided, although no one has yet shown that it causes extensive thrombosis or embolism as we feared at first. The few observations of Schultz do not bear directly on the question because his transfusions were small in amount as compared with the amount usually transfused by the direct method.

In emergencies and occasionally at other times, relatives or friends of the patient have been used as donors. Their blood should of course be tested. Iso-agglutinins are inherited, as first pointed out by Ottenberg[10] in an article with Epstein, published in 1908. No certainty can be secured, however, without examination, as each individual inherits from either one of his parents.

We shall omit any detailed reference to the technic of agglutination and hemolysis tests. We use a modified Wright's capillary pipet method, first described by Epstein and Ottenberg.[11] This method has the advantage that it requires only as much blood as can be obtained from a finger prick from both patient and donor. With this method it is possible to examine ten or twelve donors within two or three hours.



Blood-smear of patient made during transfusion. The patient's serum was agglutinative to the donor's blood-cells. Phagocytosis was observed only in cases of this kind.

We have always performed Wassermann tests on prospective donors. The necessity of this has been demonstrated by the finding of five positive Wassermann reactions in prospective donors. In a well-equipped laboratory the Wassermann and other tests can be performed simultaneously and all can be completed within three hours.

HEMOLYSIS

The hemolysis of one human blood by another is a pathologic phenomenon. It was formerly thought to be characteristic especially of carcinoma and tuberculosis,

* From the Pathological Laboratory of Mount Sinai Hospital, New York. Part of this work was done while one of the authors held a Eugene Meyer, Junior, Fellowship in Pathology.

1. Flörcken, H.: Direct Transfusion of Blood; Five Cases, München. med. Wchnschr., 1912, No. 49; abstr., THE JOURNAL A. M. A., Jan. 18, 1913, p. 250.
2. Gray, F. D.: Direct Transfusion, Med. Rec., New York, 1911, lxxix, 198.
3. Suttner, C. N.: Arteriovenous Transfusion by the Crile Method, Northwest. Med., 1911, iii, 192.
4. Pool, E. F., and McClure, R. D.: Transfusion by Carrel's End-to-End Suture Method, Ann. Surg., October, 1910, lii, 433.
5. Pepper, William, and Nisbet, Verner: A Case of Total Hemolysis following Direct Transfusion of Blood by Arteriovenous Anastomosis, THE JOURNAL A. M. A., Aug. 3, 1907, p. 385.
6. Crile, G. W.: Transfusion with Note on Hemolysis, Surg., Gynec. and Obst., 1909, ix, 16.
7. Watts, S. H.: Suture of Blood-Vessels, Ann. Surg., September, 1907, xlvi, 373.
8. Rehling, M., and Weil, R.: Avoidance of Hemolysis in Transfusion, Am. Jour. Surg., March, 1909.
9. Intravascular hemolysis causes hemoglobinuria only when it exceeds a certain limit. Smaller amounts of hemoglobin are removed by the tissues. (Boycott and Douglas: Jour. Path. and Bacteriol., January, 1910, p. 313). This is probably why Crile did not notice hemoglobinuria in cases of tuberculosis to which he refers (Tr. Am. Surg. Assn., 1909, xxvii, 80).
10. Ottenberg, R., and Epstein, A. A.: Proc. Path. Soc. New York, 1908. Also von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch., 1910, v, 531; 1910, vi, 284.
11. Epstein, A. A., and Ottenberg, R.: A Method for Hemolysis and Agglutination Tests, Arch. Int. Med., May, 1909, p. 286.

but it has been shown[12] to occur in a great variety of diseases.

That it is necessary to make tests of this kind if hemolytic accidents are to be avoided, is evident from the fact that the blood of seventeen out of 128 of our patients was actively hemolytic for several different donors, as well as from the published reports of accidents and fatalities in cases in which preliminary tests had not been made.

The diseases in which hemolysis was observed were:

	Cases
Purpura hemorrhagica	2
Carcinoma of the stomach	3
Carcinoma of the rectum	1
Lymphatic leukemia	4
Pernicious anemia	2
Chronic osteomyelitis (due to *Staphylococcus aureus*)	2
Pelvic abscess	1

There were three instances of reverse hemolysis, that is, hemolysis of patients' cells by donors' serum. The first was in a patient who was suffering from postoperative hemorrhage. On subsequent examination the donor was found to be suffering from tuberculosis. The others were in a case of pelvic abscess and a case of pernicious anemia.

In all except two of the cases cited the patients' serums were hemolytic with only some, but not all, of the prospective donors' bloods, and by examining a certain number of men, one was eventually found who was not hemolytic with the patient. In two of these instances, on account of the desperate condition of the patients, hemolytic transfusions had to be ventured. In two additional cases (not included in the list) transfusion had to be abandoned because the serum of the patients was powerfully hemolytic to the cells of every donor examined. One of these was a case of lymphatic leukemia, and the other of pernicious anemia.

One of the hemolytic transfusions was done in a case of pernicious anemia. The serum of this patient was agglutinative and weakly hemolytic to the cells of the donor. The transfusion was followed by an intense hematuria which lasted about twenty-four hours, during which the hemoglobin dropped from 34 to 31 per cent., instead of rising further, as almost invariably happened after transfusion in other cases. In spite of the loss of the transfused blood, transfusion apparently exerted a favorable influence on the course of the disease, as the patient improved slowly but steadily during the following month.[13] The patient returned to the hospital eight months later, and a second transfusion was done. This time a donor was found whose blood did not agglutinate or hemolyze when mixed with that of the patient, although the patient's serum was hemolytic to the cells of four of ten donors. This transfusion was successful; the patient was greatly improved, and her life was prolonged for a year and a half.

In the other case (one of acute lymphatic leukemia), in which test-tube hemolysis was noted between the blood of the patient and that of the donor, the patient's serum sharply agglutinated the donor's cells, but only slightly laked them after three and one-half hours in the thermostat. There was no hemoglobinuria, but blood-smears made during and after the transfusion showed phagocytosis of red blood-cells by leukocytes in the circulating blood. The patient died forty-two hours after the transfusion. The case will be more fully discussed later under the heading of agglutinative transfusion (see photomicrograph).

In only four other cases in the whole series were any red blood-cells found in the urine after transfusion, and in these four cases they were found only in small numbers in the centrifuged sediment.

Jaundice occurred after transfusion in only one case in the series, and in this it was slight and transient, disappearing in two days. It may have been due to some other cause, as the patient had a carcinoma of the stomach (Old Series, No. 46).

The absence of hemoglobinuria in over one hundred cases in which hemolytic donors were excluded by examination and its occurrence only once in the whole series, and then in a case in which the test-tube hemolysis had been noted, proves that the danger of hemolysis can be absolutely excluded by careful preliminary tests.

AGGLUTINATION

Iso-agglutination, unlike isohemolysis, is not a pathologic phenomenon, but occurs between normal human bloods. All human beings fall into four permanent hereditary and sharply separated groups with regard to whether their serums agglutinate each other's red blood-cells or not. When the blood of two persons belonging to the same group is mixed, no agglutination occurs. When the blood of two persons of different groups is mixed, agglutination, either of one by the other or of each by the other, always occurs.

It is not necessary here to go into details of the grouping. The important questions are whether or not it is necessary to pay attention to agglutination in selecting donors and what the influence of agglutination is on the result of transfusion.

Human iso-agglutinins are present in only relatively weak concentration, generally not being active at all in greater dilution than 1:10 or 1:20. All the agglutinin present in a given volume of serum can be absorbed by a small volume of susceptible cells.[14] The result of this is that, when a given volume of serum is mixed with a large volume of susceptible cells, the individual cells are only feebly sensitized and no gross agglutination is seen.

In the instance in which the serum of the donor is agglutinative to the cells of the patient, the plasma of the donor on transfusion will be diluted by an excess of the patient's plasma and will meet with a large excess of the agglutinable cells. These are the conditions under which, in vitro, the minimum amount of agglutination, if any at all, is observed. In practice, in all such transfusions, as we shall show later, no unfavorable results were obtained (four instances).

When the patient's serum is agglutinative toward the donor's cells, the conditions for sensitization of the cells of the donor are much better, as a smaller bulk of blood-cells is introduced into a larger volume of agglutinative plasma. Even here, however, it is probable that only in exceptional instances can massive clumps of agglutinated cells be formed, such as are seen in the test-tube when a dilute suspension of the cells is mixed with agglutinative serum and allowed to rest quietly until agglutination is complete. There is no doubt, however, that some sensitization of the cells occurs under these conditions. It is in these cases only that phagocytosis

12. Ottenberg, R., and Epstein, A. A.: The Diagnostic Value of Hemolysis in Cases of Cancer, Arch. Int. Med., June, 1909, p. 467.

13. It is possible from the work of Hess and Saxl (Deutsch. Arch. f. klin. Med., 1912, cviii, 181), that the material from some of the destroyed cells may have been used in the reconstruction of blood.

14. Ottenberg, R.: Transfusions and the Question of Intravascular Agglutination, Jour. Exper. Med., 1911, xiii, No. 4.

of red cells in the circulating blood has been observed, twice by us and once by Hopkins.[15]

We have seen four transfusions in three cases in which the serum of the donor was agglutinative to the cells of the patient. There were no untoward symptoms in any of these four transfusions. In two of the four transfusions numerous blood examinations showed absence of phagocytosis in the circulating blood. In the other two transfusions no search was made for this. Of these three patients, one, with gastric ulcer, ultimately recovered completely while the other two died within a few days of causes that had nothing to do with the transfusion (shock, following resection of the stomach in one instance, and liver abscess in the other).

We have seen three transfusions in which the serum of the patient was agglutinative to the cells of the donor. In two of these instances, already cited, the serum was also slightly hemolytic.

In the first of these (referred to previously), an intense hematuria occurred. This was one of the early cases and no observations were made as to the occurrence of phagocytosis. In the second case, one of acute lymphatic leukemia, the patient's serum was agglutinative and slightly hemolytic to the donor's blood-cells in three and one-half hours. Blood smears at the completion of the transfusion showed phagocytosis of the red blood-cells by polynuclear leukocytes. The patient died forty-two hours after the transfusion. There was no hematuria in this case, but the amount of hemolysis in the test-tube was minimal.

The third instance in which the patient's serum was agglutinative to the donor's cells was also a case of pernicious anemia. Blood-smears made five minutes and fifteen minutes after the start of the transfusion and at the end of the transfusion showed phagocytosis of red blood-cells by polynuclear leukocytes (see photomicrograph). The patient passed no urine after the transfusion, and died eight hours later. Necropsy revealed an extensive phagocytosis of the red blood-cells in the microscopic sections of the lymph-nodes and spleen.

The occurrence of phagocytosis of the red cells in the circulating blood is an exceedingly rare phenomenon and is in every instance due to injury or destruction of red cells. Aside from the present instances, it has been described as occurring, so far as we have been able to find, only in paroxysmal hemoglobinuria and in potassium chlorate poisoning.[16] Our control observations of over thirty non-agglutinative and non-hemolytic transfusions show that the phagocytosis was not due to the nature of the diseases (pernicious anemia, leukemia) in which it occurred, because among the control cases were several cases of each of these diseases with no phagocytosis after transfusion.

In the great majority of cases transfused in which hemolysis and agglutination have been excluded by tests, febrile reactions following transfusions have been entirely absent. In a considerable number of cases (twenty-one out of 128), there have been slight febrile reactions, lasting one or two days, probably to be regarded as ordinary surgical fever. In less than 10 per cent. of the cases (ten cases in 128), more severe reactions occurred, often with chills, occasionally with vomiting. In none of these cases did symptoms last more than two days. In none of them did hemoglobinuria or hematuria ensue. The occurrence of these symptoms has been variously attributed by some authors to hemolysis or agglutination, or (by German authors who studied indirect transfusion) to the transfusion of fibrin ferment.

The first two causes can be excluded in our cases. Fibrin ferment cannot be a factor because the transfusions were direct artery-to-vein or vein-to-vein transfusions; nor do the pathologic conditions for which the transfusions were done in the cases that had severe reactions throw any light on the cause of their occurrence.

The same thing is true of skin eruptions which occurred in about 10 per cent. of the cases. The cause of skin eruptions is evidently connected with the cause of severe febrile reaction, because five of the eleven cases which showed skin eruptions were in the group which showed severe febrile reactions. Two of the instances of skin eruption were cases of severe general erythema, and it is interesting that in both of these cases the blood-serum of the patients was powerfully hemolytic for the blood-cells of the majority of proposed donors, but the particular donor chosen was one whose blood-cells were not laked. It seems, therefore, as though the cause of the extensive skin eruption in these cases had some connection with the cause of the hemolytic poison, but was not identical with it.

SUMMARY

1. Accidents in transfusion due to the occurrence of hemolysis or agglutination of the donor's blood-cells by the patient's serum, or vice versa, can be absolutely excluded by careful preliminary blood-tests. We have been able to prevent accidents of this kind in 125 transfusions.

2. The relation between test-tube hemolysis and intravascular hemolysis is close, and it seems likely that in all cases in which there is test-tube hemolysis, some intravascular hemolysis occurs. When this exceeds a certain limit hemoglobinuria results.

3. The occurrence of agglutination (between the blood of the donor and that of the patient) need not be regarded as an absolute contra-indication to the transfusion, but non-agglutinative donors should be chosen whenever possible.

4. Phagocytosis of red blood-cells by leukocytes in the circulating blood of the patient transfused is undoubtedly connected with interagglutination of the two bloods; it occurred in our series in two cases in which the serum of the patients was agglutinative toward the cells of the donors (in one of the cases the serum was also hemolytic), and it did not occur in any of thirty-five non-agglutinative transfusions in which it was carefully looked for. These negative cases included two cases with extensive urticaria and one case with severe febrile reaction after transfusion. In the cases in which the serum of the donor was agglutinative toward the cells of the patient, no phagocytosis of red cells in the circulation was seen.

5. In selecting donors with regard to agglutination, the agglutination of the donor's cells by the patient's serum is more important to avoid than the reverse.

6. Febrile reactions or urticaria and other skin eruptions occur after about 10 per cent. of transfusions, irrespective of hemolysis or agglutination, and are not due to fibrin ferment or to blood platelet destruction. These reactions, however, are never serious and the patients have done well in spite of them.

The authors wish to thank Dr. F. S. Mandlebaum for the photomicrograph.

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15. Hopkins, J. Gardner: Phagocytosis of Red Blood-Cells after Transfusion, Arch. Int. Med., September, 1910, p. 270.

16. Huber, O.: Changes in Blood in Potassium Chlorate Poisoning, Deutsch. med. Wchnschr., Oct. 10, 1912, p. 1923.

A STRIKING ACQUIREMENT OF VISUALIZING POWER AND THE DEVELOPMENT OF DREAMS FOLLOWING A CEREBRAL TUMOR EXTIRPATION

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AND

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The relation of intracranial growths to mental activity is recognized as a very intimate one. Most of us are familiar with the changes in memory and disposition, the states of hebetude, lethargy and stupor, the decrease in power of attention, the so-called "dreamy states," the abnormal emotional states, fatigueability, etc., associated with cerebral tumors and their usual concomitant state of increased intracranial tension. Pfeifer[1] has recently given quite a complete summary of the mental disturbances found in these types of cerebral cases.

The relation of brain tumors to mental imagery, however, seems to have called forth but little comment.

Since 1880, when Galton made his classical study of the visualizing faculty, students of psychology have been able to classify persons in this respect. We have known that memory, that is, knowing and remembering, takes place by means of visual images, by auditory images, by motor and tactile images or by various combinations of these types—the usual method. The case we have to present represents a striking example of the appearance (reappearance probably) of the visualizing power following immediately—a matter of hours—in the wake of a cerebral tumor extirpation.

HISTORY OF CASE

Patient.—Miss H., aged 22, teacher of domestic science, born in Massachusetts, of American parentage. Service of Professor Cushing in the Peter Bent Brigham Hospital, Boston. Patient comes from a cultured family; her father is a professional man. There is nothing similar to patient's trouble on paternal or maternal sides. Personal history unimportant except that twelve years ago patient was struck with a croquet mallet over the right parietal region (area of tenderness found in examination), causing a severe nosebleed. Patient does not recollect having been unconscious or confined to bed. She has always been stout since puberty. She was a student until June, 1912, when she was graduated from a college in Boston. Though the school work had been constantly heavy, she enjoyed it and was able to complete her studies more or less successfully. (See later notes.)

Present Illness.—Vision: Blurring of vision began in January, 1912. The retinal vessels were found to be tortuous. Her glasses were changed and symptoms disappeared until December, 1912. At this time patient complained of eye-strain. In January, 1913, she began to have difficulty in accommodation, followed by decrease in visual acuity. On admission to the hospital patient had "spells" in which it was difficult for her to differentiate people.

Paresthesia: Numb-tingling sensations began in April, 1912. First noticed in left upper extremity, beginning in hand and extending to pectoral region and left side of face. Tongue and buccal mucous membrane involved. Came in brief attacks; later immediately antedated.

Convulsive Seizures: The first definite convulsion appeared at night, August, 1912; it involved the entire body. In the beginning such attacks were repeated at intervals of a month. Later they became more frequent and more severe. A typical attack consisted of: sensory aura (previously referred to) without cry; there was an indefinite feeling of malaise and severe headache with twitching of fingers of left hand, followed by involvement of hand, forearm and upper arm, in order; loss of consciousness and convulsion of entire body; cyanosis; frothing at the mouth; labored breathing and involuntary micturition. Duration, a few minutes. Consciousness recovered in about fifteen minutes; tired and "used-up" feeling, but fairly bright.

Headache: This was severe in and following seizures. Between attacks slight occipital and posterior cervical pain, "neuralgic" in character. Some headache as a junior in college.

Vomiting: This occurred at the onset of a few attacks and was not often projectile in character; occasionally not associated with seizures. There was some nausea.

Pain in Left Pectoral Region and in Left Arm: First noticed in June, 1912, together with the numb sensations. Later the patient experienced also a severe, throbbing, burning sensation in these parts.

Dizziness: This was occasionally present when arising in the morning. Sometimes, in descending stairs, this necessitated holding on to the banister, but patient never fell. Objects at no time appeared to move.

Physical Examination.—Thorax and abdomen unimportant. Blood-pressure 110 (Tycos). Blood: White blood-cells, 8,900; hemoglobin, 100 per cent. (Sahli). Urine not unusual. Temperature and pulse normal.

Neurologic Study.—(Drs. Cushing and Bagley)—Head: Marked tenderness over right posterior parietal region.

Skin: Firm and elastic. Rather marked panniculus, evenly distributed.

Cranial Nerves: Unimportant except for,

N. II: Eye-Grounds (Dr. Clifford Walker). Fundus right eye, acuity 20/30. Disk elevated 7 D. Entirely obliterated by new tissue formation of considerable duration, under which engorged and tortuous veins and narrow arteries were deeply imbedded. A few punctate hemorrhages with one large flame-shaped hemorrhage. Peripheral fundus slightly edematous. Fundus left eye, acuity 20/40. Disk elevated 7½ D. Otherwise much as in right eye.

N. III: Right pupil larger than left. Both sluggish to light, right more than left.

Cerebrum: Frontal.—Slight disturbance in memory (of recent appearance) for names and small events. Temporal.—No aphasia; no uncinate gyrus symptoms; no hemianopsia (no constriction of form fields. Slight constriction for colors in left eye. No scotomas made out). Parietal.—(sensory) Paresthesia with attacks. Touch, pain and temperature good. Muscle sense good. No astereognosis. (Motor) Epileptic attacks. Marked muscle fatigue following slight exertion, especially in left arm. Occipital.—No hemianopsia. No visual hallucinations.

Cerebellum: Romberg negative; no nystagmus. No disturbance of gait. Some dizziness. Diadokokinesia much better with right arm. No definite ataxia, though left arm moved less well than right.

Reflexes: Superficial.—Elicited. Deep.—Knee- and ankle-jerks not obtained on either side.

Sphincters: Loss of bladder control in attacks.

Vasomotor: No changes.

Extremities: Uses left and right hands equally well.

Operation.—On March 28 Dr. Harvey Cushing performed a right exploratory craniotomy and decompression. A generous-sized bone-flap was turned down from the parietal region. There was a depressed area in the dura just below the parietal eminence, corresponding to the tender spot on the skull found during the examination. There was also a kind of conical protrusion of the inner table of the skull about the size of a five-cent piece extending to a fairly sharp point. The dura was fairly tense and unusually vascular. By reflecting the peripheral dura upward a definitely demarcated area of dark red appearance was seen in the parietal cortex which proved to be new growth. A small isolated island of dura was left, about 5 cm. in diameter, which was attached to the underlying tumor mass. This occupied the region of the angular gyrus. The new growth was carefully dissected from the surrounding cortex and finally delivered in toto. It was quite vascular and had a soft, pulpy consistency. At no point did it seem

1. Pfeifer: Arch. f. Psychiat., xlvii, 2, 558, 1912.

to invade the cortical substance. The cavity left in the hemisphere gradually filled in, so that within a short time the brain had resumed its normal outlines; in fact, tended to protrude from the dural opening. The exostosis of the inner table was rongeured away and the bone-flap replaced.

Pathologic Report.—(Dr. Rhae). The fresh tumor measures 4.8 by 2.6 cm. by 4.6 cm. Weight, 48.5 gm. Microscopic sections made in the plane of its greatest diameter are roughly hemispherical with a slight concavity on the flattened side. Throughout the greater portion of the section there is a limiting capsule of dural tissue. The tumor itself shows a connective tissue stroma, a good blood-supply and numerous tumor-cells. The latter vary little in size. Their nuclei are oval and most of them have a distinct nucleolus. No fibrils are demonstrated in connection with them and none show mitosis.

Diagnosis: Endothelioma of the dura.

Recovery.—Patient came out of the ether rapidly and by 9 p. m. was in excellent condition. She conversed intelligently with those in charge of her. Discharged on the forty-sixth day following the operation with remarkable subjective and objective improvement. Convalescence uninterrupted for a number of weeks. Recently some minor epileptiform attacks.

PSYCHOLOGIC STUDY

On the morning following the tumor extirpation one of us noted that the patient appeared to be in unusually good spirits. A little questioning revealed the fact that she was quite excited over the ability, which she seemed to have acquired quite suddenly, of making mental pictures of the objects and persons in the room, a faculty, she asserted, quite foreign to her previous capabilities. Further inquiry led to the discovery that she had dreamed during the night and that this dream consisted of mental images, which will be described in detail later.

Formerly her dreams had consisted only of images of the motor, auditory and tactile types. A brief statement regarding her education during the past few years will serve now to substantiate the patient's assertion that previously she had had no visual imagination.

Up to the age of 13 the patient was looked on as being as bright as her associates. Throughout her college life, however, she was signalized by her roommate and family as having an exceedingly poor memory. English was particularly difficult. She was unable to remember eight or nine lines of poetry or prose, and then but for a short time. This much was accomplished only by tedious grind and repetition. History and geography were likewise very difficult. Interest was never taken in any of these. She could at no time picture to herself kings or battlefields, and mental images of cities and landscapes were unknown to her.

Mathematics was perhaps less difficult, but she never was able to visualize the problems. Her favorite studies were chemistry and biology, because, she explained, in these sciences she was able to see and use her hands in her work with the subject material. The solution of each problem, as it arose, was more a matter of physical exertion than a mental effort with abstract data. She liked the practical rather than the theoretical, the mechanical more than the literary.

In memorizing her work, a chemical formula, for example, she would start with one group and then reason out what the opposing groups should be. In drawing a structural formula she had no mental picture of it, but accomplished her task by remembering chiefly the movements of her hand. Her closest associate described her as "a freak all her life, lacking in some things and ahead in others, though never unusual enough to attract the attention of outsiders."

Taste and smell memories had always been keen—in fact, too acute at times, to the patient's discomfort.

Auditory images were frequent and distinct. Motor and tactile images as well were constantly good it seems.

About one and one-half years previous to her admission to the hospital the patient studied psychology. In the course of the class work she was led to scrutinize her ability in imagery. To her great astonishment she found that her classmates differed from her essentially, in that they could visualize and she could not. When told by the instructor to describe the mental images formed after the word "fire-engine," she enumerated only the sound of the gong, the clatter of the horses' hoofs and a rushing feeling. She could picture nothing of the horses, engine, men or streaming smoke. In recalling a flower, a rose for example, she recollected only "the feeling of smoothness against my cheek and the pricks from the thorns."

Drawing had always been difficult. In trying to sketch a maple leaf she remembered the sharp points of the leaf by the feeling of pricking and the general outline by the position of the fingers surrounding it.

In traveling her parents had noticed that she usually carried a collection of photographs. These were frequently inspected. The patient explains now that at no time was she ever able to recollect the faces of even her father and mother. In thinking of them she felt obliged to look at their pictures. For the scenes of her home she likewise had no mental imagery.

Novels, it seems, had very little attraction for her. She described them as dull and uninteresting, particularly the descriptive passages. Throughout her college life, at least, motor, tactile and auditory images appear to have played the most important rôles in memory.

These examples, corroborated by instructors and family, afford some idea of the subject's mental imagery during the several years preceding the cerebral operation. With the tumor extirpation the readjustment rapidly became apparent to the patient herself, first of all, and then to the examiners in charge of her. The development of the new type of imagery, moreover, was strikingly definite. Within a short space of time she could picture to herself flowers held before her, differentiating correctly the various shades and outlines. A book held before the eyes could later be visualized in all its details—binding, title, decorations, etc. A doctor, on leaving the room, was recollected in pictures of form, clothing and expression. Her pet dog, which had not been seen since admission to the hospital, was now pictured clearly, to her great astonishment and pleasure.

One afternoon when we entered her room together she enthusiastically exclaimed:

"Oh, I have had such a wonderful new experience! My nurse has just been reading a book to me. Let me tell you about it. . . . For instance, Miss M. was reading about a row of houses (description formerly bored her greatly, as noted before) which were so crowded together that they squeezed their bay windows out in front, and their living-rooms so narrow that they resembled parlor cars. I can see these houses with their bay windows perfectly now. And the parlors—why, I can see the car interiors with their rows of windows and their easy chairs, and even the dust on the window-ledges. Yes, I can see the colors perfectly." The images, however, did not appear to be overdistinct. Their intensity corresponded, apparently, more or less closely to the visual impressions.

STUDY OF THE DREAMS

The psychologic development of this interesting case follows two paths. The first points to the past; the second points to the future. They both start from the patient's dreams. As has been mentioned, the night following the operation the patient had a vivid visual dream. That it was visual struck her with astonishment. At first she repeatedly said she could not remember ever having had such an experience before in her life. After several days of consideration of her newly acquired visualizing capacity, however, it was found that this first memory, or lack of memory, was misleading. She recollected that when she was about 8 she remembered seeing a girl with red hair on a bridge with a broken rail which sagged in the middle, and thinking at the time that she had seen it before. Since then she has "remembered" the occurrence, but could not visualize what it was about. She can remember visually very well now going to a shoe factory (before she was 8) and seeing the long bench on which the workmen cut out the leather. But she cannot visualize a "memory" of anything happening after that time. While she is unable to recollect actual occurrences of a visual nature since 8, she nevertheless can imagine, visually, persons and places which she must have seen. This is interesting from a psycho-physiologic point of view, since the patient's vision was always good up to the present illness, notwithstanding the fact that she had no visual memory or imagination.

The second path we wish now to follow concerns itself with the development of the dreams in significance and complexity. In her first visual dream the patient thought she saw her physician, a trunk and a gray wall. The picture was without color, other than being in black and white, like a photograph. It also had no action.

According to the Freudian theory of dreams, a dream is a symbolical manifestation of a repressed wish—it is a hallucinatory wish-fulfilment. Is that the case here?

Questioning the patient brought out the fact that she regarded her physician as her savior. She felt that she was rapidly approaching a fate, perhaps worse than death, and her one forlorn hope lay in this possibly successful operation. She said, "There was nobody I'd rather have seen than Dr. ——" (naming her physician). Several other associations must also have operated to bring a doctor to her mind. In the first place, her father was a doctor — the author of her being. In the second place, the physician to whom she had been taken for consultation diagnosed her condition correctly, and it was at his request that the operation was performed. Thus this image of her dream was at least triply determined by weighty determinants — weights having the significance of life and death, bodily and spiritually. Here another law of dream formation seems fulfilled, the law that single elements of a dream are overdetermined, that is, a number of motives unite to produce a single psychic effect.

The desire in this dream is undisguised. In this respect it is like the dream of a child. She wanted to see her deliverer and so she did. She wanted to go home and so she saw her trunk. Distortion comes in dreams only when what is wanted has to be concealed for social, ethical or other reasons. There was a slight repression, however, even here. Without this there might have been no dream. It is obvious that while she might properly desire to see the man who had saved her, she would have to repress that desire since he would be too busy to come merely to gratify her in letting her look at him. Thus here a slight ethical and social reason constrained the patient to repress her wish, which then fulfilled itself at no expense to any one, in a dream image. As a visualizer the patient was a child again, and dreamed like a child of just what she wanted. But as a visualizer she grew very rapidly, and, as she did so, her dreams grew more distorted, more obscurely symbolic and expressed more fundamental desires.

The second dream was somewhat more complicated, and in part a very interesting symbolical revenge. One of the doctors said she looked like a tomboy with her head shaved. She resented this a great deal, as she later admitted. She felt chagrined, she asserted, at having a man tell her she lacked in feminine attributes. That night she had her revenge. She dreamed that the offending doctor was a child, in a very lacy gown with lots of pink ribbons and bows. Here one is immediately struck by the increased complexity of the dream. It riots in color and form and has a conscious emotional content, which serves to distort it and thus to disguise its fundamental significance.

A number of possible wish fulfilments are manifest. The patient revenges herself against the offending doctor by making him look ridiculous. She also places him in her power where she can train him and make him do as she desires. In this way, perhaps, she can teach him better manners as he grows up. Again, in picturing a child she demonstrates to herself that she does not lack in fundamental feminine attributes and capacities. Again the dream is childlike in its clarity. Here manifest and latent contents are almost identical. A short conversation with the patient would convince almost anyone that she was the personification of the *ewige weibliche*. As many believe, the fundamental desire of such a woman is to have a child. Here the desire appears to be almost openly gratified, the only concealment being a slight displacement of affect. The element of ridicule is emphasized at the expense of the deepest desire—the desire for a child itself.

What is apparently the fundamental law of dreams, that is, dreams are wish fulfilments, is thus followed in both dreams recorded above. The law of dramatization is also exemplified, not only in these two dreams, but in all that follow. This law states that dreams are like pictures and that ideas have to be expressed dramatically.

The law of condensation—many motives being represented by one image—is satisfied here also. Thus the dream appears to be a compromise formation. The images selected are those which will satisfy at the same time many more or less divergent motives.

The next dream is far more complicated. The patient dreamed she was in a large house. When she entered the living-room, which was very large, she saw a group of people sitting before a fireplace. One was standing, a man, an intimate friend. For a moment she debated with herself as to whether she should show her real feelings or repress them because of the others present. She decided to act as she felt. She ran up to this man, greeted him joyfully, put her arms around his neck and kissed him. At this point she perceived the shocked look on the faces of the others, but she did not care. As he also did not appear to care, she took him by the hand and ran with him into the different rooms, all over the house. Then she awoke.

When the patient started to tell this dream, she hesitated. She finally said she would tell part. In the end she told all. The portion she intended to leave out concerned the kissing. The man was an old and most intimate friend. It grieved her because he had failed to

inquire how she was, though he must have known about the operation. The day following the patient called out gleefully, "Do you wonder I wanted to hug him?" and showed a fat letter she had just received from the man of her dream. In this dream we see for the first time an excellent opportunity for the fourth law of dream formation to manifest itself, that is, the law of secondary elaboration. According to this law the dream itself is never so rational or consistent as it appears to be on recalling it. The dream is elaborated and rationalized in becoming sufficiently conscious to tell. One can never be sure how much of the final form of the dream is thus due to this factor. The first two dreams of the patient were severely simple. It seems highly improbable that there might be much elaboration in relating them. From the third dream on, however, the dreams are all so rich in material and so complex in form and significance that they give excellent opportunity for secondary elaboration.

Here we have a dream, furthermore, the hesitation in telling of which manifests a consciousness of the tendency to repression. The significance of the dream, as showing her affection and desire for the man, was not fully realized, although it certainly was partly felt. As the patient was not under obligation to endure psychanalysis no questions were asked. There is, of course, probably much more symbolical significance to this dream and to the dreams following than we can elucidate here. For any who may be interested in carrying further an analysis of this type the Freudian literature is recommended, especially Freud's *Traumdeutung*.

The night following the last dream cited the patient dreamed she was in a hole trying to get out. She took hold of a large stone—like a monolith—but it rolled over onto her, pressing her to the ground. It did not hurt her, however, and soon her "friend" (her dream lover) appeared and helped her out. Then she fancied she was on a street where there were a great many public buildings, especially churches.

For the benefit of those who may wish to try their hand at interpretation, the following dreams will be reported although no attempt will be made here to analyze them.

The patient was in a long and narrow room at night. The "friend" of her dream was there. She was on an operating-table having her nose examined with an ophthalmoscope. She could hear the doctors talking about her, but could not understand what they said. She was quite puzzled at their using an ophthalmoscope on her nose. She tried hard in the dream to find out what they were after. There were many doctors about and she could see them very distinctly. They all appeared to be quite unusual and peculiar in many respects. One in particular wore a very short beard. He looked extremely funny. The doctor had dark eyes, with quite conspicuous pupils, that is, the pupils were very large. The patient found these eyes interesting. At first she felt somewhat suspicious, but later they gradually gave her a sense of confidence. The nose was rather small, the features regular; she does not recollect the clothes. The first thing that the patient noted was the beard, then the eyes were seen, and finally the man as a whole.

The next night the patient dreamed she was coming from a room at the end of the hall. Near the stairway she met one of her college instructors. He presented her with some tea-leaves and asked her to make some tea. She descended some stairs, a long flight with winding railing. She saw the paper on the wall, the white treads, the mirror, and an old fashioned camphor chest, mahogany chairs, etc., exceedingly distinctly. Then she passed through her father's private office, seeing its details very clearly. On reaching the dining-room she found things rather muddled. It seems she could not accomplish anything. She endeavored to gather things together to make tea, but as fast as some were collected others disappeared. She saw a great accumulation of fancy and odd cakes. Some in particular were especially distinct. There were "platters and platters of things to eat."

In another dream the patient needed some sort of an operation on her ears. The operator was a man to whom she had been going for years for her ears. It was icy outside. She met a person whom she did not know, at first, though he looked familiar. She finally recognized him as a man her physician had taken into her room the day before. On the way to the office she went to her grandmother's house. Here she entered a brick-paved entrance hall different from anything she had ever seen before. Then she journeyed to the doctor's office. There were so many people waiting that they had to enter the inner office in groups. The patient was especially interested in one man with a child. "He had a rather sweetish type of face," she said, "and was tall and fair." The child was 3 or 4 years old. The man first spoke English, but fearing to be overheard he later conversed in German. She was much interested in him. Finally she entered the inner office, but the doctor was not there, and his son treated her instead.

After acknowledging that she had had a terrible recurrent dream, previous to the operation, which had stopped with the tumor extirpation, the patient could not be induced to tell its nature. She said it did not concern visual images, however. With this she asked to be excused from further questioning. The study necessarily stopped here.

One of the most interesting points relating to this series is the increasing complexity of the dreams as they appeared. It seems as if the dreams were being utilized for ever more and more significant symbolization. Simple gratitude and a desire to go home characterized the first dream, while love and marriage are symbolized in the later ones. It is interesting to note how dreams and visual imagination are probably in the service of the desires. Unfulfilled wishes of the day are satisfied at night by symbolic creations. The restoration of the visualizing capacity simply affords the person another method of presenting to herself her various wants.

It seems as though there must be some significance in the order of the dreams. First gratitude for her life appears, then a child, next a lover and then churches picture themselves in her dream-life consciousness. Is this not also the order of her real desires?

The problem of where the memory of the "lover" was before he appeared in the dream is very interesting. That the material, so to speak, was there for use in visualizing him, is proved by the fact that he had not been seen for some little time before the operation and not at all since. The image of the dream, therefore, must have been created out of material already present. Previous to the removal of the tumor, however, this material was not available either for dreams or visual imagination. Visualizing, perhaps, was actually done, at moments, but it was not sufficiently connected with the other thought processes constituting the ego-consciousness and so it was not remembered. Thus there apparently was some kind of dissociation between particular visual images and other images.

Regarding a possible physiologic explanation of this psychologic change in mental imagery we have little to suggest that is satisfactory. We know that functions of

the various parts of the brain may be held in temporary abeyance, so to speak, by pressure—the so-called increased intracranial tension as well as the immediate neighborhood relationships. Following tumor enucleation, abscess drainage, and palliative decompressive procedures we are wont to expect amelioration of not only the headache, vomiting and lethargy, but also of the changes in memory, in attention, in emotions, and so on. What is more, we know now that the finer objective findings may alter rapidly in much the same manner. In cerebellopontine growths, for example—endotheliomas which may have no immediate connection with the cerebellum itself—where equilibrium and general muscle coordination are much disturbed, we are aware that often these symptoms may rapidly diminish in intensity following successful extirpations. A further demonstration is offered by the interesting charts which Dr. Cushing and Dr. Walker are gathering in a detailed study of the visual fields before and after cerebral operations. These show surprising enlargements of the form and color fields and increases in visual acuity, some changes even within twenty-four hours.

The rapid reappearance of visual imagery, then, as noted in this case, has clear-cut analogies in other aspects of cerebral pathologic physiology. Just why there should have been a selection for visual imagery alone, however, is not so clear. Auditory and motor images apparently showed no changes in intensity before and after the surgical treatment.

Starr thinks that the visions of delirium are probably produced by irritation of the visual area of the cortex. Irritation, we know, of the occipital cortex can produce forced revivals in consciousness of visual memories which may consist of actual images. More or less extensive lesions in the occipital cortex, on the other hand, are attended by losses of visual memories. While the endothelioma here occupied a parietal lobe site, it is conceivable that either neighborhood pressure or general tension factors may have inhibited, temporarily, this occipital lobe function.

We wish to express our gratitude to Professor Cushing for permission to investigate and publish a report of this case.

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HYPERTHYROIDOSIS OF INTESTINAL ORIGIN

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The pathogenesis and disarrangement of the internal secretions and defective coordination between these secretions and the nervous system which constitute hyperthyroidism or, when they are in an extreme state, Basedow's disease, are still veiled in obscurity. Whatever the internal disarrangement of a chemical or neurogenic nature may be, it constitutes, for the present, one of the mysterious problems of pharmacology, as well as of physiology and pathology.

When Basedow first published the symptom-complex in 1840, which has since retained his name, he described three classical signs as characteristic of this condition: first, exophthalmos; second, enlargement of the thyroid, and third, tachycardia. At present we could probably safely add two more frequent conditions. These are muscular tremors and disturbances of the gastro-intestinal tract, particularly diarrhea. The diarrhea has since then always been regarded as a consequence of Basedow's disease and I fail to notice in literature that anyone has reported diarrhea, or more precisely, any anatomic change in the gastro-intestinal tract as preceding the classical symptoms of Basedow. Robert James Graves, who worked over the studies of Basedow and confirmed them, nowhere states that a typical Basedow may follow years of gastro-enteric abnormalities. We have as yet no exact physiologic, pharmacologic or pathologic test for the existence of Basedow's disease in its incipiency—conditions which are more properly called "thyreoses"; when there is excessive function of the thyroid, the condition is called hyperthyreosis; when diminished, hypothyreosis. I should suggest a third idea where the thyroid secretion is not quantitatively diminished nor increased, but chemically altered into a secretion containing different chemical substances from the normal. I designate this as *dysthyreosis*. No one denies the facility of the diagnosis when the classical symptoms are pronounced, but usually when such a state of the various organs exists, there are already extensive pathologic changes in most of the internal organs.

In the present state of our knowledge we have principally two views which, though indefinite, might be stated as attempts to explain the internal disarrangement of the secretion of ductless glands and the disturbed reciprocal coordination of nerve-cells with these internal secretions. One is the view held by Moebius that the thyroid is at the bottom of the entire trouble. The other is not definitely associated with any clinician's name, but it is a view which maintains that the thyroid is only secondarily involved and that some other nervous or chemic deviation from the normal has preceded the thyroid abnormality. That pronounced cases of hyperthyreosis, even with exophthalmos and slight enlargement of the thyroid and tachycardia, have been observed where surgical removal of parts of the thyroid could reveal nothing abnormal in the gland itself, is suggestive of the possibility that the thyroid may be secondarily affected.

In a recent article[1] von Noorden describes remote symptoms of a nervous and muscular derangement consequent on intestinal disturbances and even goes so far as to suggest that his associate (Eppinger) has isolated a bacillus from the intestinal contents of such sufferers which is suspected of being the cause of the whole difficulty.

McCarrison's results are mentioned in THE JOURNAL[2] as follows:

> Having shown in the course of his researches on the etiology of endemic goiter that the infecting agent of this disease exists in the intestinal tract and that a plentiful amebic infection was present in this situation in the vast majority of all cases of goiter in Gilgit [India], McCarrison has been engaged in endeavoring to cultivate amebas from the feces of sufferers from this disease. During the course of this work he was struck with the constant character of the bacillary growths which appeared in the medium employed. This medium was the one recommended by Musgrave for the cultivation of amebas. The vaccine employed was, therefore, a composite one and contained organisms capable of growth on an alkaline and feebly nitrogenous medium. This vaccine was administered in selected cases in doses of from 150,000,000 to 350,000,000; the inoculations were made at intervals of from seven to ten days. The results obtained were most gratifying.

Recently Sasaki produced enlargement of the thyroid by feeding normal rats with feces of other normal rats,

1. Von Noorden, Carl: Intoxication Proceeding from the Intestines, Especially Polyneuritis, THE JOURNAL A. M. A., Jan. 11, 1913, p. 101.
2. McCarrison's Researches on Goiter, editorial, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449.

and he also produced thyroid enlargement by the subcutaneous injection of rat feces. These experiments are quoted from Julius Bauer.[3]

We may interpret these quotations that intestinal abnormalities, though long recognized as a consequence of hyperthyroidism, may also be a cause, even if we limit ourselves to the conception that a live microbic agent is necessary to bring about this effect.

I wish to report three cases in which a chronic colitis of ten, eighteen and twenty years' standing had preceded the symptoms of hyperthyroidism. Two of these patients had been in Carlsbad for the relief of their colitis and one had been operated on, a partial thyroidectomy having been performed with only very transient relief of the symptoms. Naturally it would be desirable if we could find a method of determining when and how a colitis or enteritis is the cause and when it is the result of hyperthyroidism. Unfortunately, we are still lacking biologic and chemical tests for ascertaining the relation of these two states. I had personally hoped for such a test from the research of Dr. Reid Hunt, working in the Department of Pharmacology of the United States Public Health Department, but Dr. Hunt's acetonitril reaction has not proven of diagnostic help. I quote his own words from a letter to me:

> I do not think that the acetonitril reaction has at present any value for purposes of diagnosis; it does not seem to be constantly obtained even in marked cases of hyperthyroidism. I hope, however, it contains the germ of a method which may be developed into one of use.

Perhaps as important a conclusion as any can be deduced from the fact that treatment directed to the intestine is more efficacious than treatment by thyroidin, antithyroidin, or by Beebe's antithyroid serum, and in these specific cases even more effective than operation on the thyroid. When the original causative process is in the intestine, particularly in the colon, there is no treatment like lavage of the colon with irrigations of 1 per cent. solutions of ichthyol. As much as 1 liter may be used in persons having a large colon and half a liter in persons with a small colon. I have also found that the *Bacillus bulgaricus* in pure liquid cultures administered for a long time reduces the tremor, as well as the headaches and insomnia.

I hope to furnish a more complete report when the cases which I still have under observation are more carefully studied. Treatments of various kinds had been administered in all three of my cases. One patient had gone through a rest-cure of ten weeks with electric, dietetic and medicinal applications. Another had been in a sanatorium for two months and had taken bromid of quinin and ergot for six weeks, with varying effects. Both of these had taken antithyroidin, but never were free from headaches, insomnia, tremors and tachycardia except when at perfect rest. Whenever they resumed their duties their symptoms returned. I kept them in bed three weeks, also, but on a meat free diet and colon irrigation and symptoms gradually abated. One patient at the date of this writing has been free from headaches, tremors, and insomnia for six months, though at times he still experiences tachycardia if he exerts himself in warm weather. A second patient has had no tachycardia that she knows of for a year, sleeps well and appears normal, excepting an occasional attack of diarrhea, which has been traceable to errors of diet. The third patient is still under observation, but is progressing so satisfactorily that, although he is a busy physician, he has had only one attack of tachycardia in nine months while attending to his professional and scientific work.

		Average Pulse
Case 1.	Before treatment	120
	Last six months	78
Case 2.	Before treatment	106
	After one year	80
Case 3.	Before treatment	100
	Last four months	74

I still advise continuance of cool needle-spray douches, strict diet, twelve hours' rest a day and one colon irrigation every six to ten days in these patients. One patient, however, has not resumed irrigation of the colon for five months and has remained sufficiently well to attend to his work. When we remember how unpromising purely internal and physical treatment of the thyreoses has been, these results of this special therapy are sufficiently favorable to warrant a continuance of it in the special types of thyreoses in which it appears indicated.

Further studies will be made to throw light on the ideas held by McCarrison, von Noorden and Sasaki, namely, to determine whether a specific microbic inhabitant of the colon is either directly or indirectly the cause of this special type of thyreoses. The chemical and bacteriologic character in all of the evacuations of these cases—I mean the study of the feces—will be reported in a future communication. But I may premise my future report by stating that no specific bacterium or protozoon has been discovered by us that enabled us to reproduce successfully the Basedowoid symptoms and signs experimentally on animals.

Read and Charles Streets.

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EFFICIENCY IN NURSING *

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This title is intended to describe the much-neglected field of the economic side of ward nursing, especially in the larger hospitals. Recent magazines are filled with articles discussing "efficiency" in laying bricks or handling tools, and "get-together" principles are the order of the day, but one looks in vain for any serious discussion of the importance of efficiency in the nurse's routine or any "getting together" between the architect who plans the clothes closets, pantries and other ward accessories and the nurses who have to walk endless miles between them in the course of their routine work. Mr. Taylor has shown us how many unnecessary motions the bricklayer makes—how often he bends his back and moves his arms to lay a single brick. Does any one know how many unnecessary steps the ward nurse takes or how often she bends her back or lifts heavy weights? What we do know is how tired and worn she gets when the service is heavy, and how many hospitals, from various causes, have inadequate nursing service, whereas a little intelligent direction would save enough energy in the aggregate to amount to the services of several additional nurses.

Having for some time had opportunity to observe these problems in several large hospitals, both municipal

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

and privately endowed institutions, I finally began to gather statistics. In stating them I shall purposely omit names, in order to avoid the implication of any personal reflection. As I have been unable to find reference to any such facts elsewhere, they will be given in some detail.

I first tried having the nurses wear pedometers in several hospitals. In one I found that the day nurse walked seven and one-half miles a day, in others an average of five and one-half miles. This, in addition to all the stooping and lifting the nurse has to do, besides carrying heavy weights, involves an excessive expenditure of foot pounds of energy. In one hospital in which the wards are so long that the furthest bed is 120 feet distant from the ward kitchen tables, it was the custom to carry the food trays separately to and from each bed three times a day. When all patients were bedridden, as often happened in the twenty-six beds, it was a matter of simple addition to show that some one, usually a nurse, had to walk two miles per ward each day merely to serve meals! The very heavy wooden trays were found to weigh 8 pounds each, and when loaded with heavy ward crockery and with food and drink each tray weighed 15 pounds. Some one, therefore, in each ward had to haul a considerable weight two miles. An additional consideration was the minor factor of so much parading up and down a ward where quiet should be an essential in the treatment of the very ill. I suggested obtaining wheel trucks adapted to carry a dozen or more trays at a trip. I was met with the objection that "the food would reach the patients cold." At this I was surprised, as such trucks are in use in some places, although many large hospitals are without them, partly, no doubt, because no one ever suggested to the architect that he provide space for them when not in use. Experimentally, therefore, I took a common wheel stretcher, placed eight trays on it and, watch in hand, compared the time of delivery with the serving of a like number of trips individually. The entire time consumed in serving eight patients and returning to the kitchen was only two minutes with the truck and ten minutes without. This disposed of the cold-food theory. The distance traveled was 74 feet as compared with 240 feet. Since that time trucks have been used and the comment which reached me from a ward maid, who in this case assisted in the meal service, was: "Bless the man that invinted thim thrucks—sure the corns is all gone off me hands since." The wooden trays had absurdly high backs, so I had two pounds of wood sawed off from each tray.

The bed screens weighed 31 pounds, and three were required to surround a bed. In accordance with the deep-rooted objection common to many training-school superintendents to accumulating anything in the wards intended to promote the true comfort of the patients, these screens were stacked in the hall when not in use. If a man in the furthest bed had to use a bed-pan, some one had to haul a weight of 93 pounds to and from him and then, of course, carry the bed-pan to and fro, thus walking in all about 480 feet. After some insistence I succeeded in having some of the screens left at the distant end of the ward, where they would be reasonably at hand when needed.

In the books on physiology and therapeutics it is taught that water is a good diuretic and promotes activity of secretions, lessening constipation, and some of the more thoughtful of us advise patients to drink it between meals! How many hospitals have drinking water at hand in the wards? In one hospital I found that a few water-coolers in use in July and August were all stowed away by the nurses for the winter in a storeroom in the attic because the Powers that Be thought that they encumbered the ward and, besides, the poor thirsty patients sometimes spilled a little water on the floor! Of course a thirsty man may call a nurse to bring him a glass of water when she is not too busy, but if she has to walk a block or two to get it, she is not likely to do it very often. To show that this is no exaggeration, I went into a tuberculosis ward where the faucet and the pantry and the patients were all in widely separated localities. Here the tumbler had to be taken to the faucet for disinfection and then replaced on a very remote pantry shelf. I asked a nurse to make believe a patient was thirsty and get him a drink. I followed her around, pacing the distance traveled, and she walked 364 feet. At this institution the trustees finally ordered water-coolers in each ward and an individual tumbler to be kept accessible for each patient. It is noteworthy that such suggestions never come from the training-schools.

There is usually a single table at one end of a long ward to which the nurse periodically carries the bedside note-blanks to be written up several times a day. How many feet of useless tramping would be saved by having a second table in the center or opposite end of the ward! The patients' bedside tables are all placed on the same side of the bed, regardless of the fact that one may have hemiplegia and be unable to reach the table with the unparalyzed arm.

There is a very good municipal lodging-house for tramps in New York City. In most large hospitals the medical wards are precisely like the dormitories of this lodging-house. There is a bed, a small table, and a more or less (usually more) uncomfortable chair for each person; nothing else is kept in the ward or within easy access to make a patient *comfortable* in bed. There are no cranes at the head of the bed for a heavy patient, or a stiff-jointed one to pull himself up by, or for a heavy, fat patient to lift himself easily on to a bed-pan. Inquiry usually shows that if there are any in the hospital "they are over on the surgical side." The nurses (or rather their principals), do not like them because they detract from the symmetry of the ward. There may be a few back-rests, but the best kind, which collapse when not in use and are permanently fixed to the head of the bed, are seldom found. In one hospital I discovered that portable rests were stored in a remote closet so far away that the nurses seldom had time to get them. I insisted on having them hung on hooks behind the beds. When I left the rests did also! Often a convalescent is able to sit up only long enough to eat a meal, which he does in comfort with a back-rest, but what nurse has time at the meal hour to walk a block and bring in a heavy rest to be used only a few minutes and then take it back? How much simpler to set the dinner tray flat on the patient's stomach and let him try to eat lying flat and getting more and more tired from the weight (for not all trays have legs and, when they do, they are usually too short)! If one's appetite is poor, discomfort while eating certainly does not improve it.

How many medical wards have cradles to take the weight of the bed-clothing off from swollen, rheumatic leg-joints? Ask the nurse, who says she "has heard of one in the building but it must be over on the surgical side." Her rule is to strap the bed-clothes so tight over the feet that they cannot slip, and the patient, in consequence, enjoys a more or less painful talipes equino-

valgus. I produced a decided sensation in one hospital. A 300-pound woman with nephritis, incontinence, bedsores and high tension came into my wards. When lying on her back she was 28 inches across at the hips and she lay on a 32-inch-wide bed. She could not turn without landing on the floor. She needed to be turned for enemas, to have her sores dressed, and to be cleaned after incontinence. She needed hot packs. In this hospital of 1,000 beds there was not *one* for an unusually obese patient or an unusually tall one. I sent in a requisition for a 48-inch bed. A hurry call went to a department store, and the bed arrived, but was so low that the nurses were breaking their own backs in trying to relieve the patient. So we propped it up on shock blocks and the patient was finally able to turn herself without risk of breaking her bones by landing on the floor. This apparently simple innovation was regarded as so remarkable that nurses came from neighboring wards to see it!

Such an arrangement as a foot-rest to keep a patient from slipping to the foot of the bed, or to brace against while sitting in bed, is so serious a departure from training-school routine orders as to the "looks" of the bed, that, although I have ventured to hint of it, I have lacked the moral courage to insist on it!

There are many patients who cannot use bed-pans with satisfactory results. The very obese, for example, cannot. Yet very few wards are supplied with the convenient portable commodes which are mounted on casters, and when they are I find the nurses, for some reason, very reluctant to use them, although their use requires no more work and no more screens than that of bed-pans.

There are many patients who are old, feeble, or mentally dull, or mildly delirious, who in turning in the narrow hospital bed may land on the floor, unless protected. All they need is a couple of boards at the sides of the bed, fastened by tying them through holes bored in the ends. But the nurses find it easier to fasten draw-sheets over them. This method restricts freedom of motion and irritates, and I have occasionally seen a victim so tightly fastened by a sheet drawn across the chest as to have serious impairment of breathing. I do not, of course, refer to the actively delirious who attempt to get out of bed unless restrained.

All these appliances require a little thought for their use, and my experience is that unless they are kept within convenient reach they are never used, yet they add enormously to the comfort and welfare of the patient in bed. The architect usually has never thought of them and makes no provision for space in which to keep them when not in use.

There are many other details concerning efficiency, as, for instance, lack of system in the method of distributing the various things for the morning toilet, distributing medicines, etc. There should be more ward tables than are generally found. They save many steps and promote efficiency of service. The visitor has nowhere temporarily to lay a hat or heavy coat, unless he puts it on the patient's bed or on the floor. Convalescent patients need access to a table on which to lay a book or a checkerboard, if they are ever permitted anything to divert their minds from their own or their neighbor's ailments.

I do not think these suggestions unreasonable, nor do these appliances for the comfort of patients necessarily detract from the appearance of neatness of a ward, yet the modern training-school attitude is so increasingly pedagogic and so decreasingly humanitarian that I am unable to recall a single suggestion originating with the officers of a school designed to promote the comfort of patients in bed, and I know of more than one school in which nurses are reprimanded for following their natural impulse to favor the individual. I have sometimes doubled a pillow temporarily to ease the position of a dyspneic patient, the nurse telling me she did not dare to do it herself. I admit that in general the window-shades should be kept on the same level, but if a patient has conjunctivitis, photophobia and a severe headache from facing a glare of light, and the nurse dares to pull down the shade opposite, she is liable to severe reprimand. Yet in private practice, if she refused to regard the comfort of the patient in such matters, she would quickly be superseded. Lectures on bacteriology, urinalysis, voice culture and the functions of the ductless glands loom large in the up-to-date training-school curriculum, but the gentle art of making the ward patient *comfortable* in bed, is not only unpracticed but actively discouraged in many instances.

To return to the problems of nursing efficiency. Physicians themselves are often lacking in its consideration. On "rounds" nurses are kept waiting while learned bedside discussions are held over polymorphonucleosis or complement deviations, when the service is heavy, and they ought to be serving a glass of water or easing an aching limb. The doctor's routine often calls for the recording of pulse, temperature and respiration data every three hours of every patient in the ward, although perhaps not half of them require it more than two or three times a day, and some few may not require it at all. This is notably the case on the surgical side. Now three minutes per patient to take these observations, including disinfection of thermometers and writing down the three records, is a minimum time allowance if any approach to accuracy is to be expected. In a ward of twenty-five patients, four observations a day at three minutes each, requires 300 minutes or five hours. But no nurse spends this time over such work and it would require her to neglect urgent matters if she did. Is it not better to order fewer records and have them reasonbly accurate?

One great difficulty in relation to the doctor's efficiency arises from the almost purely American custom of rotating services. Whatever may be the merits of this question, which cannot be discussed in this paper, every service should have its administrative director, that is, one physician or surgeon who is continuously responsible for securing uniformity and continuity in the matters under discussion. If back-rests and cranes and drinking-water and bedside boards and tables and food-trucks and commodes and foot-rests and leg-cradles and similar appliances are admittedly useful adjuncts to treatment and comfort of patients, they should not be brought into requisition for two or three months while Dr. Jones is on duty and then hustled into oblivion the moment Dr. Smith succeeds him, who is not regarded by the school authorities as a simple-minded crank, always trying to make patients comfortable instead of giving them an excess of pills and potions.

I have heard certain extremists among those seeking to regulate the training of nurses advocate an eight-hour system of ward work, although I have heard no definite statements as to where the additional funds were to come from, which such a system would entail, or how the additional housing required could be obtained. Nor have I heard any facts presented as to the health of

women as affected by their hospital course of training. Such facts, indeed, I find are not easily obtainable from training-school records. In one large hospital, however, where the work is so arduous that the health statistics of the nurses may be regarded as showing the extreme to which their energies may be taxed, I obtained the following data:

Total number of nurses in the school—119.
(All of these nurses were ill for at least one day.)
Total number of working days in 1912—41,650.
Total days of illness—583.
Percentage of days of illness—1.5.

Among the illnesses were eight cases of scarlet fever, seven of diphtheria, three of measles, one of typhoid fever and three of German measles, which collectively account for 433 days of the 583. As these infections were not, strictly speaking, due to overwork, it is fair to deduct the nineteen nurses having acute infections from the total of 119. This leaves 100 nurses with only 150 days of illness, or an average of 1.5 days of illness per nurse for the entire year. It thus appears that the average is extremely low, and compares very favorably with similar statistics of any large group of young working women, as, for example, factory employees, although the working hours of the nurse were between ten and twelve, as compared with the eight or nine of the factory employee.

In conclusion, I would make an earnest plea for the study of greater efficiency in nursing in order to conserve the nursing force which we have in any hospital, and for the greater use of common-sense appliances for promoting the comfort of patients in bed.

If the nursing system of to-day is being overweighted with theory and pedagogy to the detriment of more legitimate practical and humanitarian aims, which unquestionably is true, physicians have no one to blame for it but themselves, through their lack of cooperation and increasing tendency to permit training-schools to be managed by extraneous influences, manipulate their own curriculums and arrogate the responsibilities which are primarily the function of the doctor.

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THE TRAINED NURSE OF THE FUTURE*

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With the ever-extending specialization of modern society, certain social groups take on the character of human commodities. They do not produce, but they conserve values. To these groups, the profession of nursing women belongs.

These human commodities are created, in the course of social development, by the need for personal service as between man and man and by the demand that this personal service, in degree of the exigency of human need, shall be of expert quality. Some particular agency of social service is frequently employed for the immediate supply of such expert assistance. In the case of the trained nurse, the hospital has served as her creative agent. Not unnaturally, the agent of creation becomes or attempts to become the maker and the molder of the thing created; and not infrequently it comes to regard the creature it has incubated as its own particular perquisite, and designed specifically for its own use. This proprietary relation, the hospital, as the foster-mother of nurses, with the exercise of something of the maternal instinct and with more of the exercise of the instinct of self-perpetuation, has endeavored to assume.

But somehow or other in the unfolding of the biologic plan, the human creature tends to get away from his creator, to say nothing of his inevitable assertion of his independence of the parental agent of his creation. And what is true, as a matter of biologic development of the individual, is true of the group. No social condition of the group can be ultimately fixed, no economic principle of its service can be permanently established, in the fixation or the determination of which the welfare of the group and of all the parties in interest in the life of the group has not been fully and fairly considered.

In the segregation of this group of human commodities which constitutes the profession of nursing, there are four parties in interest: first, the public that it serves; second, the hospital system that it serves; third, the medical profession whose essential handmaid it is, and fourth, the group of nursing women itself. Since the greater includes the less, it would seem that the problem might be reduced to simpler terms; to two factors, indeed, society and the nurse. But in a society so highly specialized as our own, interrelational group interests arise and, therefore, in the present instance, it is essentially a four-factored equation with which we are forced to deal. Perhaps no other group of human commodities has to sustain so many relationships in its service as does that of the trained nurse. At the present juncture, each one of these relational factors is seeking to exercise a dominant influence in the development of this human commodity group. Social welfare societies, hospital associations, medical associations and nurses' federations are all busy with the question of the graduate nurse.

So vital and yet so unseen is the force of the social movements which express themselves from time to time in what we term public sentiment, that they are hard, indeed, to reckon with. In America, public sentiment is a force which finds expression slowly. It has taken the public a long time to learn the values of the trained nurse as a social commodity, as the agent of an important social service; a tardiness to be traced to the fact that nursing is only a differentiation of domestic duty. But there are many evidences that the public is beginning, not only to appreciate, but to utilize, in many different directions, the services of the nursing profession, and that this type of human commodity is a definite answer to a very definite social demand.

The most actively dominant of all the parties in interest in the development of this social group has been the modern hospital, and hitherto there has been adequate reason for its influence. It has been the sole agent of the production of the trained nurse; it has created and controlled the opportunities of training. The product of its early efforts represented new and real social values, as contrasted with the nurse of earlier days who, like Topsy, was a social orphan and "just growed."

The profession of medicine, which has been simply the co-employee, with the nursing group, of the hospital of the past, has exercised but an advisory influence over the birth and training of the nurse. It has been the habitual critic of her development, and very pertinently so, because the physician is ultimately the only competent judge of the fitness of the nurse and the chief sufferer, held responsible to her employer, the patient, for her

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possible unfitness. Yet as a purveyor, only, of the nursing product of the hospitals he has had to take, and often to train anew, just what he could get at their hands.

Up to a very recent day this human commodity, herself a social unit, not forming until lately into a definite social group, has been the most helpless and, often, in the measure of her own unfitness, the most hopeless factor in the evolution of her own class. Invited into a newly made calling, poorly prepared for her responsible undertaking, often imperfectly trained in its essential duties, hurriedly pushed out into an alien world; a half-baked social product, thrust into the fulfilment of an uncertain social need, it is small wonder that she has had a hard time finding herself. The instinct of the eternal feminine for sacrificial service has been her sole saving grace, the guiding light of her star of undoubted destiny, leading her on to the realization of her important social function.

Suddenly, as human progress goes, this group of human commodities to which she belongs finds itself in large, active and growing social demand, and with the growth of that demand, the relation of the several parties in interest, in the process of the development of the graduate nurse, has undergone a radical change.

Primarily created in answer to the demands for hospital nursing, the service of the graduate nurse has extended readily to the private homes of the well-to-do; but of late it has gone far beyond this limited range of usefulness. Trained nursing has come to be regarded as a utility which should be secured for the uses of all classes of the people. Its field is widening out beyond the lines of a purely personal service into the broader range of social service in many and varied forms.

To-day trained nurses are in the offices of physicians, assisting in the care and ministering to the comfort of temporary patients and in the conduct of private laboratories. They are becoming the professional aids of the doctor in his daily duties.

Trained nurses are in the public schools, and rapidly the system of health inspection is extending from larger to smaller communities. Here, as in the doctors' offices, graduate nurses serve as the immediate assistants of medical officers; they reach the homes of the children, become the sanitary advisers of their parents and are definitely engaged in bringing the principles of preventive medicine within reach of the practice of the people. In private schools and colleges and in state universities, they are appointed as residents in charge of the health and ill health of women students.

Trained nurses are employed in the great service agencies of relief in the large cities of the country. The badge of the visiting nurse, devoting herself to the sick and the suffering in the homes of the poor, is no less a mark of honor because it is coming to be a common one.

Trained nurses are becoming the effective agents of the constructive work of great philanthropic enterprises concerned with the problems of child-welfare, the prevention of infant mortality, the study of mental hygiene and the control of tuberculosis. They are employed in the hospital service of the army and navy and in the Red Cross Society throughout the world.

They are going far into the field of missions, both at home and abroad, and are ably supporting the efforts of medical missionaries.

They are enlisting in the welfare work in great department stores and manufactories, where an enlightened management finds an economic asset in the health and happiness of its employees.

Trained nurses are at work in the free clinics of city dispensaries and are doing valuable duty in the social service departments of the great hospitals.

Everywhere they are the effective agents of scientific medicine; they are putting principles into practice and are filling in the great gap between the laboratories of the schools and the common life of the people.

With this widening out of its field of private and public usefulness, with the opening up of its opportunities of social service, it is inevitable that the profession of nursing should have awakened to a strong sense of class or group consciousness—that it should be seeking eagerly to come into its own, as the determinant of its own welfare, the exponent of its own needs, the arbiter of its own relations to the hospital, to the profession of medicine and to the public it serves.

The development of this class-consciousness is distinctly shown at four points of social movement:

1. In the demand for legislation creating state boards of examiners to regulate the practice and to legalize the practitioners of nursing. While here, as in the profession of medicine, this demand begins with a desire for protection on the part of the profession itself, such laws, in their operation, are an exercise of the police-power of the state for the protection of the people from the incompetent. They may be taken as an acknowledgment of the relation of the nurse as a social servant in the state, whose capacity to serve, in a calling which involves the health and the life of its citizens, should be attested by the license of the commonwealth.

2. In the movement, inspired by educational leaders of the professions of nursing, toward the standardization of the education of nurses in America. This movement, to be undertaken by the Carnegie Foundation for the Advancement of Teaching, contemplates the study of conditions in six or more states of the Union, for the purpose of reaching some consensus of judgment in the matter of entrance requirements, preliminary training, duration and character of courses, etc. If the Foundation shall accomplish for the profession of nursing, in any substantial measure, what it has achieved for medical education in this direction, it will do society at large a notable service.

3. In the recent rise of university schools for nurses. The University of Minnesota is the pioneer of this significant movement for the better education of nursing-women. In creating a school for nurses as a department of teaching, under direct university control, in charge of the faculty of the medical school and affiliated with the teaching hospital, which is similarly owned and controlled by the university, it has led the entire world, although it has been happily followed, already, by two neighboring state universities. The significance of this movement lies not alone in the high standard of training which the university has set, but in the fact that its action tends to remove from the exclusive control of the hospital, as such, the education of the nurse. Its significance can be measured only by those who have studied the problem of the education of nursing-women from the point of view of the interest of the student in training, apart from the interest of the training hospital. The guarantee which the university gives that the student's educational interest shall be paramount and that the pupil-nurse shall not be exploited for the benefit of the hospital service sounds the note of an emancipation which could not be effected, perhaps, by any other agency.

The essential features of the university curriculum for nurses may be of some interest. The diploma of a high school of the first grade and an actual examination to

determine the physical fitness of the candidate, conducted by the physician of the school, are requirements for admission. Preference is given to women of superior attainments. A preliminary course of four months is required, during which the pupil is not in hospital residence, for which course she pays a tuition fee, and which covers instruction for from six to eight hours daily, conducted in the laboratories and lecture-halls of the university, in the subjects of anatomy, physiology, bacteriology, chemistry, materia medica, English, penmanship and lettering, physical culture, hospital economics and practical dietetics—a course with which the student is exclusively occupied during the four months, thus relieving the period of subsequent hospital service of many wearying hours of evening lectures. The superior fitness of the hospital entrant for her practical duties, by virtue of her preliminary course of study, has proved itself clearly to those who are in immediate charge of the school. A two months' probation service in hospital, followed by two and one-half years of graded service and study in the wards of the hospital and the outpatient clinics, complete the course. An eight-hour hospital day and the employment of an adequate number of graduate nurses as long as may prove necessary for the proper conduct of the school are added features of the university plan. On recommendation of the medical faculty the university degree of Graduate in Nursing is conferred by the Board of Regents.

4. In the recognition that the time has come when the gauge of fitness to teach and to train students in nursing must be applied to the hospitals. A demand for the educational standardization of hospitals is making itself felt.

In the past twenty-five years the number of hospitals engaged in the business of making nurses, in the interest, primarily, of the hospital's own economic salvation, has increased to the point of real educational danger. A scarcity of matriculants, low standards of admission, overworked pupil-nurses, a deteriorated and inadequately trained output, a surplusage of graduate nurses in private practice in many communities, and a lessening of earning power in consequence of this overproduction are the inevitable results.

The scarcity of nurses, of which so much has been heard in recent years, is a matter of real famine in the quasipublic and private hospitals, which, under denominational or individual control, have been unduly multiplied. It is not a matter of famine of trained nurses in private practice. If there is any scarcity of nurses beyond the graduating lines of the hospital, it is in the higher vocations to which the practice of nursing leads. These hospitals which, like the overnumerous denominational churches of most communities, are rarely filled, maintain training-schools for nurses as a necessary condition of their own support, divide and subdivide the educational field to its serious detriment, and care for their patients at the cost of the labor of their pupils. Their precarious fortunes are, in no small part, dependent on their attracting student nurses. Even at that, these quasipublic and seldom free hospitals fall back continually, under the plea of a charitable function which they do not fulfil, on subscriptive support to make up their annual deficits. Were these hospitals compelled to employ graduate nurses and to abandon their training-schools, some of them would speedily close their doors. Undoubtedly, those which could survive would eventually be better served.

The results of this uneconomic multiplication of hospitals and, along with them, of training-schools for nurses, are seriously felt in many of the larger institutions, which are compelled to supplement their force of pupil-nurses by the employment of graduate nurses, for which the private patient has to pay as much as he would for similar service in the home. Many of the best nurses now prefer hospital practice to private employment and naturally cultivate these opportunities.

The practice, in itself, suggests a remedy for the present educational misfortunes of the training-schools. The smaller private or special hospitals with less than an average daily complement of thirty patients (not beds) should be debarred, by law, from the maintenance of training-schools, for which their service is inadequate. The conduct of standardized training-schools should be confined to general hospitals of standard capacity and equipment. Substandard schools in special hospitals should be forbidden the graduation of nurses, but should be affiliated with standardized general hospitals, which should receive and credit their matriculants with equivalences of time and service and should graduate them when their full complement of training is secured. Direct affiliation with or ownership by recognized medical schools should be a prerequisite in standardizing the teaching hospital. The schools for nurses should be under the direction of the medical faculty or should have a special faculty affiliated with the medical school, on which a number of medical educators should sit. Since the day is coming when all medical schools will be university schools, it will naturally follow, if this relationship is established, that eventually the schools for nurses in America will also be under university control. Let us speed the day!

No substantial progress can be made in standardizing the education of nurses until the commercial value of the nurse to the hospital is eliminated from the question. That it will be eliminated and that progress will be made are assured by that essential fitness of things which ultimately rules the acts of men.

In discussing the trained nurse of the future, it is not necessary to conjure up any visions of a distant day. The consummation of events which are now in progress must lead up to practical results in an immediate to-morrow. There are great and difficult problems before the profession of nursing, but it is going to realize itself in their practical solution. To standardize the hospitals which conduct training-schools; to standardize the teaching of the schools; to standardize their product by effective state regulation of practice—these are large and serious undertakings. They will require the combined wisdom of the leaders of the profession and of their natural allies in the profession of medicine.

To equalize the social availability of the trained nurse is one of the most momentous matters with which the profession of nursing has to concern itself. At present, between that part of the public that can comfortably pay the fair wage of trained nursing and that part of the public which receives or should receive its trained nursing through the medium of organized relief, there are large classes of the people who are altogether unable to meet the expense of such service or who, meeting it, are financially disabled by the drain on their meager resources.

The proposed training and graduation of women of less adequate preparation, to be known as "nursing assistants," etc., and to work for lower wages, is no real solution of this very serious problem.

The plan evolved by a committee of the American Hospital Association and presented by Dr. R. H. Babcock of Detroit is an ingenious attempt to meet the

economic situation in nursing, but, in my judgment, it is as unpractical as it is undesirable. This plan proposes the creation and recognition of three classes of nurses, to be known as Class A, Class B and Class C; Class A to represent the full-fledged graduate nurse of the standard schools; Class B to be known as that of the "certified nurse," who shall have a single year's training in the schools and who is to be used, theoretically, for minor cases, at a lower wage than that paid to the graduate nurse; and Class C, to include nurses with an uncertain and unrequired quantity of that nondescript and dangerous thing known as experience, who shall be called "household nurses" and shall work for any wage they can get. This report suggests some mechanism for the distribution of these nurses, but it does not outline its origin or functions. Such a mechanism of distribution would probably fail of creation in most communities and would probably fail of operation if it should come to birth.

How would it be possible to label the nurses of Classes A, B and C so that they could be recognized by the people at large? How could the public differentiate between the graduate nurse and the nursing-neophyte? It is quite possible that the so-called experienced nurse, who, like the poor, has been always with us, would not need to be tagged. By what species of regulation could substandard nurses be confined to a smaller wage? Would they not, with the gathering of experience, compete sooner or later on equal monetary terms with the better-trained graduate nurse? What inducement would there be for them to return to the training-school for additional courses if they could climb by the easy, slow stages of such experience to a better paid practice? Should they be designed for the care of minor cases, for the nursing of which they might prove sufficiently competent, by what mechanism could they be prohibited from the care of cases for which they are not fit?

Would the well-to-do of the public consent to the employment of a nurse of Class B, if they knew her as such, simply because they had a minor case of illness to care for? Would not the system resolve itself into a subdivision of the public in the patronage of nurses according to its ability to pay for them? Would not cheap nursing, in point of quality, prove the inevitable resultant of the creation of nurses of a cheap class?

After all, the ends of social justice are not met by the provision of nurses of grades of training varying with the financial status of the employer. In the emergencies of illness the right and the demand of every man is for the highest available help. The public and the nursing profession alike would be better served by the creation and by the subscriptive or endowed support of some such mechanism as "the nurses' guild," which should provide homes for temporarily unemployed or resting nurses and should maintain an adequate supply of graduates under guaranteed employment for eleven months in each year, to be subject to physician's certified call on a scale of charges graduated to the circumstances of the sick. The profession of nursing must find some such means of standardizing its services for the benefit of society. It must acquire some elasticity of method in its business dealings with the community.

Like that of medicine, nursing is no longer a privileged profession. It is a profession of privilege, but it is the privilege of service. It cannot expect to enjoy the honors and the rewards which always attach to social service unless it accepts the fundamental principle of social serving. Freely it has received; it must freely give. It cannot achieve the solidarity of the social group save on the basis of social service. It cannot continue to command the protection of the police power of the state in safeguarding its own interests unless those interests are at one with the larger interests of the people it serves.

In common with the profession of medicine, it must take its proper place in the ranks of those social agencies which do not produce, but conserve. It must determine, with the aid of the profession of medicine, whose handmaid and coworker it is, its own educational fitness for the conservation of the most valuable of human assets, that of human health. In the great and responsible task of that conservation it must have the will and the wit to adjust itself to all sorts and conditions of men—to meet and to fulfil every form of social demand. No calling may more fitly adopt the noble motto of the noblest line of the kingly servants of men, "I serve."

University of Minnesota.

OBLIGATIONS OF HOSPITALS AND THE PUBLIC TO TRAINING-SCHOOLS FOR NURSES *

JOSEPH B. HOWLAND, M.D.
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To those who have read Miss Nutting's report on the "Educational Status of Nursing," published by the United States Bureau of Education, the present paper may seem superfluous, as the nursing situation is reviewed exhaustively in that bulletin. I believe, however, that something more may be said at this time to emphasize the duty of hospitals and the public to nursing-schools.

The progress of trained nursing in this country has been very rapid. The first training-school for nurses in America was established in 1872 at the New England Hospital for Women and Children. To-day, forty-one years later, we find approximately eleven hundred training-schools.

During this time the requirements for admission and graduation have changed very much. Miss Linda Richards, the first nurse to graduate from an American training-school, gives an interesting history of early training in her "Reminiscences." She states that nurses went on duty at 5:30 in the morning and left the wards at 9 o'clock in the evening. Even then the day's work was not done, as nurses were expected to remain in their rooms, which connected with the wards, and to answer calls during the night. Time off duty was from 2 to 5 p. m. once every two weeks. During the year of her course of training she was able to leave the hospital only twice on Sundays to go to church. Twelve lectures by the visiting staff and instruction by the interns in taking and recording temperatures, pulse and respirations completed the instruction, other than what could be learned in a practical way on the wards. Medicines were given from numbered bottles and the pupils had not the slightest idea of the nature of the medicines they gave. There were no entrance or other examinations.

Twenty years later, at the Massachusetts General Hospital, the course in training was two years. Hours of duty were from 7 a. m. to 8 p. m., with one hour off

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

duty daily, four hours off each Sunday, and two weeks' vacation each year. Weekly lectures were given by members of the staff. There were thirty recitations from a text-book of nursing. A few demonstrations in cooking and massage completed the instruction except for the actual work on the wards.

This year we find in the same school a three-year course; the hours of duty are from 7 a. m. to 7 p. m., with two hours off duty daily, a half holiday each week, and from four to six hours off each Sunday. A vacation of three weeks is given at the end of each year. Instruction in the preliminary course consists of sixty hours recitations in anatomy and physiology, and 150 hours in the class-room in the theory and practice of nursing methods. During the remainder of the three years there are lectures on biology, bacteriology, materia medica, medical and surgical diseases and dietetics; and lectures and lessons on invalid occupations, massage, bandaging, etc., a total of about 325 periods of recitations and practice work and 265 lectures. There are two paid instructors who give their whole time to classwork. This course is not cited as an exceptional one, but typical of what many schools are doing to-day.

Meanwhile, keeping pace with medical science, the field of nursing has widened correspondingly in these forty years. In the beginning, the only occupation for graduates was that of private nursing, except for the very few who became superintendents of new training-schools or who remained in charge of wards.

At present there is a wide range from which graduates may select. More nurses than can be supplied are needed for district nursing, antituberculosis work, infant welfare work in milk stations and clinics, welfare work in department stores and factories, in social service departments of hospitals, as school nurses, in settlement work, as tenement-house inspectors, as hospital superintendents and as training-school instructors.

We have just begun to realize what the demands will be for nurses in public health work.

Governor Sulzer in a message to the New York legislature this year recommends an amendment of the tuberculosis law so that "there be supervision of all reported cases by trained nurses, . . . authority for each city, county, village and town to employ trained nurses as infant welfare nurses, school nurses, tuberculosis nurses and to visit the sick," and "that a bureau of public health nursing be added to the State Department of Health."

The United States Commissioner of Education in a letter to the Secretary of the Interior transmitting Miss Nutting's report on the "Educational Status of Nursing" says:

> This work of nursing has rapidly advanced to the position of a profession requiring careful preparation for admission. Thirty states of the Union have enacted laws for its regulation and all the other states will probably do so within the next few days. [Since the letter was written, in 1912, there are registration laws in thirty-seven states.] Schools for the education and training of nurses have been established and are maintained in most of the states. There are more than eleven hundred such schools with an attendance of approximately thirty thousand students. For this reason, the education of nurses and the educational status of nursing have become questions of general importance and public interest.

That the education of nurses has become a matter of public interest as stated by the United States Commissioner of Education is a most important fact for us to recognize.

The time when all hospitals could choose their pupils without difficulty has passed. Small hospitals and sanatoriums have sprung up all over the country, even in the small, remote towns. The feeling that every such institution must have a training-school for nurses is very general. It is apparent that too frequently founders and those supporting hospitals still think that conducting training-schools is a simple matter, that providing patients who are willing to be nursed by undergraduates and to have a few unrelated lectures given by overtired members of the visiting staff constitutes a course in training. In other words, the methods of twenty years ago are too often the standards of to-day. Much is said about the responsibility of the nurse to the community, but it seems to me that the time has come to consider more seriously the responsibility of the hospital and the public to the training of the nurse of whom we expect so much, and to clearly state our needs.

If our training-schools are to be educational institutions of a high order, we must realize that like most such they will be far from self-supporting.

After leaving the hospitals, these women go out to become servants in the many fields open to them. As the public as a whole will be benefited according to the intelligence with which the nurses' work is done, so must it be ready to give generously to this most important part of hospital work, the thorough training of nurses.

The Commissioner of Education of Massachusetts has recently said that five hundred more school nurses are needed in that state at once.

Many well-educated women who now become secretaries, bookkeepers, librarians and teachers will enter our training-schools when they find that standards of training are high, and that long hours of hard, unnecessary manual labor and poor living conditions do not exist. Superintendents of nurses tell me that this lack of knowledge on the part of parents, of the actual conditions in the better schools, is in a large measure responsible for so many desirable young women entering other apparently more attractive professions.

There are schools that are attempting to solve the problem of lack of pupils by reverting to earlier methods, that of lowering standards for admission and shortening the course of training. I cannot see how in the end this can have any but an unfavorable influence on these schools. Well-educated women who have gone out from such schools and who realize what they lack, after comparing notes with their more fortunate sisters, are not likely to recommend others to enter the same schools.

Dr. Lewellys Barker of Johns Hopkins Hospital says:

> As long as nurses were drawn from the lower classes and as long as the training was merely manual, not intellectual, there could be no profession of nursing.

The financial burden of the larger hospitals is already great and to do all for our training-schools that we ought is difficult. For some of the smaller hospitals it is practically impossible.

That there is a growing prospect of relief from maintaining large expensive teaching staffs is shown by the number of training-schools now having relations with universities and colleges.

The Children's Hospital of Boston sends pupils to Simmons College; four hospitals in Chicago are connected with Northwestern University; the Presbyterian Hospital of Chicago sends pupils to Rush Medical College. There are a number of other hospitals having

similar college connections. The University of Minnesota has gone a step further and has university education and university control of the training-school of its hospital.

Teachers' College of Columbia University has an endowment of $150,000, established for the department of graduate work for nurses.

For the smaller hospitals with suitable affiliations to insure good general practical training, there has been suggested the possibility of combinations of two or more hospitals to share the expense of securing instructors in the sciences, these teachers to give the same courses in each hospital.

Technical high schools are increasing in number, and courses in fundamental nursing subjects have been established.

A course in dietetics is given in the Springfield (Mass.) technical school. The technical high school of Toronto gives a six months' preparatory course in nursing. For the hospitals that are unable to meet high standards for training nurses there is a field too little developed, that of training attendants. The Special Training-School Committee of the American Hospital Association, which reported at the annual meeting in 1909, recommended that attendants be trained "in hospitals too small to maintain a training-school, in chronic wards of large hospitals, in special hospitals and homes for incurables." There should be, however, no confusion between the trained nurse and the trained attendant.

Physicians and the public should be made to clearly understand the difference in training; otherwise, with attendants failing to meet responsibilities which should only be given to graduate nurses, much harm will be done to the present standing of the nursing profession. No hospital should undertake the training of attendants without an adequate staff of trained nurses to provide good nursing for acute cases and to assume careful oversight and instruction of the pupil attendants.

That the demand for attendants will exceed the supply for a long time to come, I am thoroughly convinced. It is not alone the poor who will be benefited. Many well-to-do people who are suffering from chronic diseases can be well taken care of by those who have been trained in the mechanical work of nursing.

Finally, let us accept the fact that training-schools for nurses should be able to provide adequate theoretical training and practical experience. Let us make this clear to our hospital boards and benefactors, that the necessary money may be spent on our nursing departments.

Massachusetts General Hospital.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HOWLAND, BEARD AND THOMPSON

DR. P. E. TRUESDALE, Fall River, Mass.: There are many problems yet to be solved bearing on the education of the nurse. Her proper training and an efficient care of the sick must be accomplished simultaneously and harmoniously. The fact should not be lost sight of, however, that hospitals are founded and should be maintained for the sick. In America, particularly, this attitude is in a large measure responsible for the favorable impression which our hospitals have made on the public. If the education of physicians and nurses is to be made a paramount issue in hospitals, charitable or pauper institutions only will exist.

I wish to ask Dr. Beard what his results have been in the employment of graduate nurses for hospital work. In my somewhat limited experience I have found that the graduate nurses who seek hospital work are of two types; one represents the highest type of nurse; the spirit which prompted her to enter the nursing field was one of unselfish devotion to the afflicted. Her reasons for preferring hospital service are genuine. She makes the ideal nurse and accomplishes vastly more in the hospital. The other type is at the other extreme. She is available most of the time, and will take private work or hospital work as it happens to come. She has her diploma, and now cares only for a salary. It is always a risk to give her responsibilities, and her sense of discipline is a thing of the past. Yet a hospital superintendent who employs graduates only must content himself with a majority of this class and he and his patients should command your sympathy.

Dr. Howland sounded the keynote when he stated that smaller training-schools must meet the requirements by affiliation. It seems to me that Dr. Beard, Dr. Howard, Dr. Howland and other authorities on the education of nurses should indicate the standards of education to approach, and those training-schools which are found wanting should be counseled and reorganized instead of condemned.

DR. ARTHUR B. ANCKER, St. Paul, Minn.: The City and County Hospital of St. Paul was the first to establish a training-school in this section of the country. We started out with a two-year course, and succeeded in graduating a good many young women who have successfully practiced their profession, several of them obtaining distinction. Furthermore, it has been my observation that some of the most ardent advocates of the three-year course are themselves the possessors of diplomas that they obtained after two years of training. If only because of the advantage that accrues to the hospital, I would advocate the three years' course.

A high school or a university education, as a qualification for admission to the training-school, is desirable, but I do not believe that, primarily, it is the most important consideration. If the candidate have a good home training, industry, and ambition, something less than either of the other qualifications would do.

In the twenty-one years of the City and County Hospital Training-School for Nurses we have had but three deaths, one from typhoid fever, and two from scarlet fever. I cannot remember one of our nurses who, when she had secured her diploma, had to abandon her career because of her physical unfitness.

MISS LOUISE M. POWELL, Minneapolis: I should like to give one experience at the University Hospital to show that high standards can be maintained even though it costs a good deal of money. In the fall of 1912 we had a hospital of 120 beds to open, with fifteen pupil nurses. Instead of throwing down the barriers of our high-school requirement and preliminary course and working our nurses twelve hours, the faculty gave us permission to employ as many graduate nurses at fifty dollars per month as were necessary to carry on the work of the hospital. We employed, for a period of from six to eight months, twenty graduate nurses. I agree with Dr. Truesdale that graduate nurses in the wards are far from satisfactory.

MISS HARRIET A. HARTRY, Minneapolis: The majority of the criticisms of superintendents of nurses are largely overdrawn. One is the question of orderliness in the hospital. The essayist missed the mark altogether when he said that the training-school superintendent insisted on the shades being straight even though a patient suffering from some unmentionable eye disease would suffer because the shade was not drawn down. That is not the meaning at all. No superintendent of nurses would object to a shade being drawn down, but what she objects to is lack of orderliness.

DR. KATE LINDSAY, Boulder, Colo.: I have been a practicing physician in a sanatorium. I see that the sanatorium nurse is not represented here to-day. While all honor is due to the hospital nurse, in the sanatorium, and especially in a tuberculosis sanatorium, a sanatorium for nervous diseases or a general medical and surgical sanatorium, you will find that if you appoint most of the nurses to treat a case by such physiologic medical treatment as massage, proper bathing, psychologic therapeutics, the use of electricity, dieting, and

general management of the patient, she will find herself wanting; at least, that has been my experience. We all have our ideals. We cannot have our standards and our ideals too high.

So far as the nurse's health is concerned I believe that we need to give more instruction to the nurse as to how she can best conserve her own health. Efficiency is the ability to do work and yet not wear one's self out doing it by ordinary methods of work.

DR. CLEVELAND H. SHUTT, St. Louis: Most of us can tell the nurses what their ideals should be. The community owes something to the nursing profession in showing what it expects to hold out for the nurse after she has completed her training and education to become a nurse.

There is a movement on foot by one of the great independent foundations to investigate the various places from which nurses are graduated in the United States; I will not say trained, because there are many places where nurses are not trained, they simply work. I believe that there will be greater benefit derived by the nursing profession directly, and by the hospitals of the entire country indirectly, from this than from any other movement than has been inaugurated. We have, I dare say, in this country more training-schools for nurses which do not train nurses than there are training-schools that do train them. There are many institutions that specialize, doing only surgical work or only some special sort of work, who give at the end of a certain time a certificate "Trained Nurse." If certain reasonable standards are established and if the facilities which institutions offer for training of the nurse are investigated, tabulated and published, we shall get the right kind of women to apply for training. They will be eager to do so. No one should be more deeply interested in the question of standardizing training-schools for nurses than the nurses themselves. Their own organizations should take that work up because it is, I believe, the most practical movement toward the elevation of the nursing profession and toward giving the women who enter the profession what they deserve in return for their efforts and time spent in training.

MISS DELIA O'CONNELL, Minneapolis: I have sometimes wondered if the scarcity of nurses in our well-equipped training-schools is not due to the fact that these schools insist on three years of unrequited training. I know that there are many women with high-school educations anxious to take up nursing who cannot afford the three years of training without salary. They can learn stenography in six months; they can take up bookkeeping, or they can enter a training-school for two years and three months, after which plenty of work as private nurses is available. They take no second-rate positions. They are good nurses.

DR. H. B. HOWARD, Boston: There is one thing that I would like to say: Any training-school will succeed and find its place in the community as long as it is careful in selecting pupils with good dispositions and kindly manners and trains them so that these good points are cultivated and improved. The training-schools do for the nursing profession more, in some respects, than the medical schools do for the physicians that they graduate and throw on our community: they test out as to their physical ability, their ability to endure the work and to maintain an even manner under trying circumstances; in fact, their dispositions are thoroughly tried out. Those that have a bad disposition rarely pass. If a nurse has a diploma or certificate from even our poorest schools, as a rule, you will find she is a woman with a good disposition. I think that there has not been sufficient emphasis placed on this point, and I think that this is the reason why even the poorer schools do seem to fill the bill.

DR. JOHN A. HORNSBY, Chicago: I am more convinced than ever that we are talking at cross-purposes with exactly the same intention. Dr. Beard is perhaps talking about a class of nurses who shall lead and teach in the profession of trained nurses; some of the rest of us are thinking about nurses to take care of patients, at home and in the hospital.

All our training-schools nowadays admit pupils only after they are 21 or 22 years old. Most young women finish their school training at 18; then they either stay at home and take their little fling in society, or learn stenography, or dressmaking, or go into a shop. When the young woman is 22 years old, she decides to become a nurse.

Now I wonder if we cannot compromise with Dr. Beard by taking the girl of 18 when she comes out of school, while her mind is still fresh and flexible and while she still has the habit of application to her books. Why cannot we take her and give her this preliminary course in school without introducing her into the wards of the hospital at all, say for six months or even a year, and then put her in the hospital and give her two years' training?

DR. RICHARD O. BEARD, Minneapolis: It is not women with university training that we seek; it is simply women with a good average degree of preliminary attainment. Nor are we going to take them at 18 years of age. We have put the age down to 20, and sometimes have been sorry that we have. It is a question of a person fresh from the study of the schools; it is a question of a person with sufficient maturity to know her own mind and to be willing to devote herself seriously to a serious vocation.

We know that it is extremely difficult to put graduate nurses and pupil-nurses together in the same institution; but we have had to do it and we are going to keep on doing it until we can get our school built up to the point at which the pupils of that school can fitly take care of the university hospitals.

I cannot for one moment share any sympathy with the principle that the system of training nurses should, under any circumstances whatsoever, be exploited for the benefit of the hospital or the hospital service. As a matter of fact, there is no inadequacy of supply of private nurses of any kind in most of our communities.

ARTERIOVENOUS ANEURYSM OF THE SUPERFICIAL FEMORAL VESSELS *

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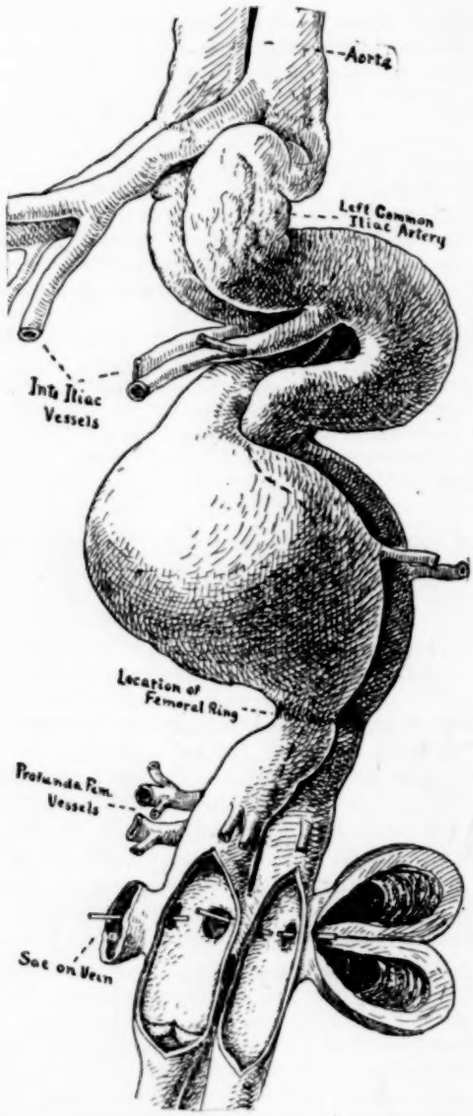
The specimen pictured herewith is of interest because of the extensive nature of the alterations in both artery and vein up to the bifurcation of the aorta and vena cava, and because of the probable bearing of these lesions on the cardiac condition, on account of which the patient entered the hospital. It is of interest also to note that, in spite of the marked nature of the lesions in the femoral and iliac vessels, no history of symptoms directly referable to them was obtained.

History.—The patient, a physician, aged 63, was admitted to St. Luke's Hospital, Dec. 22, 1912, on the service of Dr. Austin W. Hollis, through whose courtesy I am able to report the clinical history of the case. He complained of shortness of breath and presented symptoms of cardiac insufficiency. There was a history of some dyspnea on exertion, extending over a period of two years, while for the previous two months he had been incapacitated by marked shortness of breath even while lying down and had had some edema of the abdomen, legs and feet. He gave no history of symptoms referable to the genito-urinary, respiratory or gastro-intestinal tracts. His family history was negative. During childhood, the patient had had scarlet fever, and later in life malaria. Luetic infection was denied.

Examination.—This showed a cardiac dulness extending 15 cm. to the left of the sternum, murmurs referable to a mitral insufficiency and an irregular, arrhythmic pulse, averaging 90 to 100 per minute. There was moderate edema of the lower extremities and trunk. The urine was negative, except

* From the Pathological Department of St. Luke's Hospital, Dr. F. C. Wood, director.

for a faint trace of albumin in one of several specimens examined. There were numerous moist râles in the lungs and signs of fluid at the right base. Relating to the condition in the left thigh, it was noted that in the left groin was a pulsating, expansile tumor, the size of a hen's egg, situated over the profunda femoral artery. Over this tumor was heard a continuous murmur which possessed a systolic accentuation. The information was obtained that about eighteen years before the patient had been shot through the thigh by a small caliber (probably 0.22) rifle bullet. The amount of disability at the time of injury was not stated, but it was known that since that time the patient had lived in and had traveled extensively through South America and had spent much time on horseback.



Arteriovenous aneurysm of the superficial femoral vessels.

The meagerness of the details concerning the subsequent course of this lesion makes difficult an explanation of the extensive changes in the external and common iliac artery on that side. The changes in the corresponding veins, however, are explainable on purely mechanical grounds. Obviously, from the rather strenuous nature of the patient's subsequent career, he could not have been greatly incapacitated.

The patient's illness terminated fatally one week after admission.

Necropsy.—A general congestion of all the organs was found. The heart was dilated and hypertrophied. The right ventricular wall measured 0.6 cm. and the left wall 2.2 cm. in thickness. The muscle was pale and flabby. The right auricle was thickened and greatly dilated. The tricuspid orifice was markedly dilated, admitting five fingers readily. The mitral orifice admitted three fingers. The valves in both cases were slightly thickened, but not distorted, and showed no vegetations. The pulmonary valve was normal. The aortic orifice was dilated, the leaflets were considerably sclerosed and atheromatous change at their points of attachment was marked. No vegetations, ulcerations or distortions were present. The arch of the aorta was uniformly dilated and showed areas of rather advanced atheromatous change without ulceration, but around the orifices of the coronary arteries calcareous plaques were found. The coronary arteries were thickened and a moderate degree of atheroma was present. The aorta, from arch to bifurcation, showed irregular areas of early atheromatous change. The right common iliac presented a relatively normal appearance, while on the left side the artery had undergone most pronounced changes.

When the pelvic region was examined, the bladder, sigmoid and upper portion of the rectum were found lifted well out of the pelvis and toward the right side. This was due principally to the immense dilatation of the left external iliac vein and to the dilatation and tortuosity of the corresponding artery. Since the lesion was evidently due in large measure to a retrograde process, it is convenient to begin the description of the specimen at the site of the original injury.

The bullet had perforated the superficial femoral artery and vein where they lie in contact about 6.5 cm. distal to the point at which the profunda femoral vessels are given off. It had gone completely through each vessel, and the points of entrance and exit were situated diametrically opposite each other. The adjoining orifices in artery and vein had become closely and densely adherent to each other, and a smooth-surfaced opening of irregularly rounded outline about 0.7 cm. in diameter persisted. The perforation in the left wall of the artery presented a similar appearance and communicated with an egg-shaped, thick-walled, saccular aneurysm about 4.5 by 4 cm. in its diameters. The sac wall was firmly adherent to the surrounding muscle and fascia. Near the orifice the sac was thin and calcareous, and the cavity contained a recent clot, while the other two-thirds was filled by a dense organized clot.

In removing the specimen, owing to the collapsed condition of the vein, a portion was inadvertently left behind, for leading off from the margin of the perforation of the internal side of the vein and continuous with the wall of the vein was a margin of what was evidently the wall of a sac of a diameter considerably larger than that of the vein. Whether this was a saccular aneurysm of the vein corresponding to the one in the artery can only be conjectured. The opening was 0.6 cm. in diameter, irregular in outline and covered by intima. The inner surface of the margin of the sac wall was likewise smooth. For a distance of 1.5 cm. distal to the point of communication, the artery was dilated and the wall markedly sclerosed and atheromatous; below this point it appeared normal. The vein wall was thickened and dilated for a distance of 3 cm. below the communication, where a pair of well-developed valves was found. Below these valves the vein appeared normal. Above the communication both artery and vein were dilated to about 2.5 cm. in diameter. The arterial wall was sclerosed and atheromatous and contained calcareous plaques. The vein wall was considerably thickened. Both artery and vein diminished in size where the vessels passed beneath Poupart's ligament, assuming an oval outline with diameters of about 2 by 1.5 cm. They both immediately dilated again to their former size and the external and common iliac divisions of the artery maintained a diameter of about 2.5 to 2.8 cm. for the remainder of its course, which was in the form of a double ox-bow and increased the actual length of the vessel to 38 cm., while 15 cm. are given as the average normal length. The wall of the artery showed marked thickening, atheroma and calcification. Except for general sclerosis and marked atheromatous change about its mouth the internal iliac artery appeared normal. About 1 cm. above the femoral opening the vein dilated suddenly to form a fusiform, rather thin-walled sac, 6.5 cm. in diameter by about 7 cm. in length. In a modified degree the vein followed the

tortuosity of the artery and the dilatation and thickening of the wall extended into the inferior vena cava, while the right common iliac vein appeared normal.

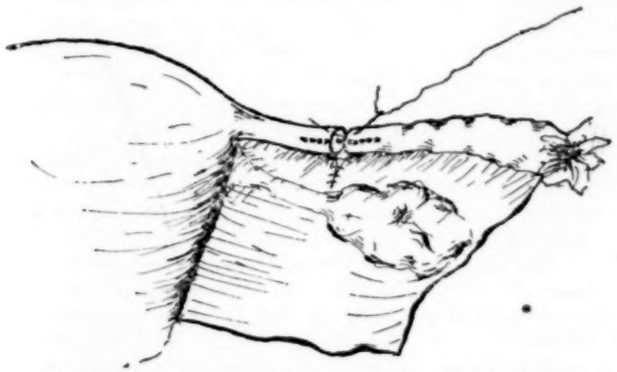
From the condition of the vena cava, its dilatation and thickening, it is reasonable to suppose that the pressure within it had been increased over a long period of time and the findings in the heart, especially on the right side, may well have been due to the distal arteriovenous communication. With a pelvis so crowded by the enormously dilated vessels it is indeed surprising that the patient gave no history of disturbances of urination or defecation. That the pressure had exerted some effect was evidenced by the fact that both ureters were dilated to about twice their normal size, and that the renal pelves were moderately dilated. Some interference with the lymphatic drainage of the left leg had occurred, for the thigh was edematous and the lymphatics and lymph-nodes in the left groin were considerably enlarged.

St. Luke's Hospital.

A NEW METHOD OF ANASTOMOSING THE OVARIAN TUBE OR VAS DEFERENS

S. L. CHRISTIAN, M.D. AND E. L. SANDERSON, M.D.
Visiting Surgeons to Charity Hospital and Schumpert Memorial Sanitarium
SHREVEPORT, LA.

Attempts at repair of the ovarian tube and vas deferens have always been fraught with uncertainty as to



New method of anastomosis as applied to ovarian tube.

whether the lumen of the tube, after simple suturing, would remain patulous or would become obliterated at the site of the suture line. So far as we are able to find out, obliteration of the lumen at the line of sutures is the usual result.

It has seemed desirable that some simple method of repairing these structures that would give reasonably certain results be devised. The following plan we have used successfully in three cases, one of which will be cited as an example.

When the ovarian tube or vas deferens has been divided from any cause, the cut ends are picked up, a piece of No. 0 twenty-day catgut is inserted 3/8 inch into each end of the tube and the ends are brought together with two apposing catgut sutures, as shown in the illustration. The lumen cannot become obliterated at the time of healing of the divided ends because the gut is in the canal and will remain there until after repair is complete and Nature has ceased to throw out reparative tissue. The gut, being of absorbable material, is soon completely removed. Gentleness should be exercised in the introduction of the catgut so as not to traumatize the epithelial lining.

CASE REPORT

Mrs. C. R., aged 29; married nine years, had never been pregnant. She was operated on two years previously, at which time the left tube and ovary were removed. She was operated on by us in February, 1913. At this time a small hemorrhagic cyst was removed from the right ovary with about ½ inch of the middle third of the corresponding tube, which was constricted from previous inflammation and proved, after removal, to have an obliterated lumen. The remainder of the tube was patulous. We then anastomosed the tube according to the technic described. This patient is now pregnant.

The operation will find a field of usefulness in the male and female in cases in which the lumen of these tubes has been destroyed.

A CASE OF HODGKIN'S DISEASE TREATED WITH BENZENE

G. B. LAWSON, M.D., ROANOKE, VA., AND E. A. THOMAS, M.D., WYTHEVILLE, VA.

History.—The patient, G. P. K., white, a farmer aged 59, was admitted to the Jefferson Hospital, Roanoke, Va., in January, 1912. His past history was practically negative except for slight attacks of acute inflammatory rheumatism at the age of 36, again at 41 and again at 44. In March, 1911, he had an attack of fever, with headache and general aching pains. This was diagnosed as the grip. Three days after the onset the lymph-nodes on both sides of the neck began to swell, increasing rapidly for a few days, and shortly after this he noticed markedly enlarged epitrochlears. The swelling of the lymph-nodes increased gradually until the patient was admitted to the hospital.

Examination.—On admittance there was marked enlargement of the cervical lymph-nodes on both sides; the swelling on the two sides almost met in front, forming a collar. The individual lymph-nodes tended to be separate and freely movable. The epitrochlear lymph-nodes were about the size of a robin's egg. The lymph-nodes in the groin were only fairly enlarged. There was practically no enlargement of the lymph-nodes in the axilla. The blood showed 5,000,000 reds with hemoglobin of 90 per cent. The leukocytes numbered 7,000, with practically a normal differential count. The physical examination was otherwise practically negative.

Treatment and Result.—The patient was treated with the Roentgen ray for four weeks. Under this treatment the lymph-nodes with the exception of the epitrochlears gradually became smaller. A month after the Roentgen treatment was stopped the lymph-nodes were larger than before treatment. In the summer of 1912 the patient was again given Roentgen treatment, and the lymph-nodes again became smaller; but shortly after the treatment was stopped they enlarged again.

Examination in March, 1913, showed swollen lymph-nodes almost encircling the neck in front and extending out beyond the lower jaw at the sides. The epitrochlears were the size of a walnut; the lymph-nodes in the groin were somewhat enlarged, with some enlargement of the axillary lymph-nodes. There were a number of enlargements behind the shoulders and in the lumbar region. These appeared to be subcutaneous lymph-nodes. There was marked cough due to pressure on the bronchi by lymph-nodes. Shortly after this the patient was put on benzene (benzol) by Dr. Thomas. The dose was 5 minims three times a day at first, increased to 10 minims. This dose was continued for six weeks. Two weeks after the benzene was begun, the lymph-nodes everywhere began to diminish in size, and they continued to get smaller even after the benzene was stopped.

Examination in August, 1913, showed barely palpable lymph-nodes in the neck. The epitrochlears were smaller than a butter-bean. There was no enlargement in groin or axilla. The subcutaneous lymph-nodes on the back had entirely disappeared. The patient has worked hard as a farmer for the last few months.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

BACILLUS OF BORDET-GENGOU VACCINE.—This vaccine is believed to be of service in the prevention and also in the treatment of whooping-cough.

Greeley Laboratories, Inc., New York City.

Bordet-Gengou Bacillus Vaccine for Whooping-Cough Prophylaxis.—This vaccine is marketed in three doses, containing respectively 200, 400 and 800 million killed Bordet-Gengou bacilli; put up in a special hypodermic unit container.

Bordet-Gengou Bacillus Vaccine for Whooping-Cough Therapy.—This vaccine is marketed in six doses containing from 100 to 800 million killed Bordet-Gengou bacilli; put up in a special hypodermic unit container.

CULTURE OF BACILLUS BULGARICUS, Fairchild.—The Fairchild culture of bacillus bulgaricus is a pure culture in vials of the *Bacillus bulgaricus*, each vial containing about 7 Cc.

Actions and Uses.—The Fairchild culture of bacillus bulgaricus is designed for internal administration in the treatment of intestinal fermentative diseases with the design of accomplishing the acclimation of the bacilli, so as to secure their characteristic action against putrefactive fermentation. It is employed in body cavities by direct application to the affected area in putrefactive and suppurative conditions. The culture may be employed for all conditions for which the bacillus bulgaricus is desired, for both internal and external use.

Dosage.—The content of one vial is the usual daily dosage. The Fairchild culture of bacillus bulgaricus is supplied in boxes of six vials and in boxes of thirty vials. The vials must be kept in a cold place and are not guaranteed beyond the date stamped on the package.

Manufactured by Fairchild Bros. and Foster, New York City. No U. S. patent or trademark.

The bacilli are obtained by inoculation and incubation upon Cohendy peptone-sugar-broth medium.

Therapeutics

INCONTINENCE OF URINE IN CHILDREN

This troublesome neurosis or nervous reflex of the bladder occurs mostly at night, and occurs in both boys and girls. More or less involuntary evacuation of the bladder at night is not considered abnormal in a babe or a young child, but when a child is over 4 years of age, at least, it must be considered more or less pathologic.

The most frequent tangible causes of this disturbance are worms, and especially pin-worms, elongated or adherent prepuce or adherent clitoris, and the general restlessness and poor sleep caused by adenoid tissue in the pharnyx interfering with breathing; less frequent causes are bladder irritation caused by an actual inflammation in the bladder, or by calculi. Of course simple or specific urethritis, vaginitis or any foreign matter in the vagina may be causes; so may diabetes mellitus, and diabetes insipidus, the peculiar nervous condition evidenced by polyuria.

If no one of the before-mentioned etiologic factors is present, one must assume that there is a congenital weakness of the sphincter muscle of the bladder, or that the urine is irritable and that there is a congenital hypersensitiveness of the bladder, so that the least distention causes its contraction. The normal desire to urinate probably comes as a rule from the posterior portion of the urethra slightly dilating and allowing urine to trickle into it. If this relaxation of the sphincter occurs abnormally, of course the reflex desire to urinate is abnormally frequent.

If any of the foregoing reflex causes of nocturnal enuresis are present, proper treatment will stop the wetting of the bed. If none of these tangible causes are present, then one must have recourse to various more or less successful treatments; and perhaps more valuable than medicinal treatment is a rearrangement of the general management of the child. It should be urged that the loosening of an adherent prepuce or an adherent clitoris may alone immediately cure the patient of wetting the bed.

The diet is important in the general management of such a child, and as soon as the child is of such an age that milk is not necessary for its food it is better to restrict the amount of milk, as nearly two-thirds of milk must be passed out by the urine. Of course coffee and tea should be eliminated from the diet of all children, especially of children suffering from this condition. The nearer the diet is vegetarian and cereal, the better for the patient, as vegetables keep more water in the intestines and pass more water out by the bowels and less by the urine than does a diet of more or less meat. All fluids should be restricted after 3 or 4 p. m. and the child should be awakened to urinate when the parents go to bed. Preventing the child from lying on its back and raising the foot of the bed are old methods which are pretty generally known. The object is to prevent, if possible, the urine trickling into the back part of the urethra and starting the vesical spasm.

While the child may be treated psychically, or mentally impressed with different physical treatments, and perhaps in some way frightened into keeping up a nocturnal memory picture of the necessity of waking when the desire to urinate occurs, still, the patient should never be punished, as this is rarely of any value.

Various electrical treatments have been tried, and probably none any more successfully than the faradic with an indifferent electrode over the spine and an active small electrode applied over the bladder, over the pubis and over the perineum, and the current made sufficiently strong to cause more or less contraction of the tissues. Theoretically this application of electricity may cause contraction and stimulation of the sphincter of the bladder, but most likely the greatest amount of good is done by the psychic effect on the child. Sometimes the galvanic or constant current, with the large electrode on the spine being the anode and the more active smaller electrode being the cathode and the current allowed to make and break, is successful.

Often the passing of sounds has seemed to be the cause of improvement. In other cases a cold perineal douche, or cold-water spongings applied to the perineum apparently cures the condition.

Medication has not been very satisfactory, except that when there is anemia, of course iron is indicated. Probably the most successful drug is atropin, either in the form of belladonna or atropin sulphate, and the amount given should be sufficient to cause some physiologic action. The dose to begin with would be 1/500 grain of

atropin sulphate to a child 5 years old, administered at bedtime. This dose should be increased until some physiologic activity is evident. Strychnin in the form of the sulphate, or as nux vomica has been recommended, but it is theoretically contra-indicated as exciting the nervous activity of the spinal cord. Bromids to depress the irritability of the spinal cord may apparently be more indicated, but such administration of bromid for more than a few days is bad treatment for any child, as it interferes with the whole nutrition. Frequently ergot is a successful medication, especially when there is a tendency to polyuria or diabetes insipidus. The ability of ergot to stimulate smooth muscle fiber is well understood, and that it is more or less of a sedative to the central nervous system is believed by many clinicians. The ergot is best administered as a thoroughly active fluidextract in doses of 10, 15, 20 or more drops, depending on the age of the child, and given directly after the evening meal.

Though almost any treatment may at times be rapidly successful, it must not be forgotten that many of these cases of nocturnal enuresis end abruptly without any special treatment, and the most inveterate cases frequently have the trouble cease at puberty, owing probably to a better development of all the muscular tissues of the genito-urinary tract.

IMPORTED MEDICATION

There has long been a tendency in the United States on the part of writers of scientific articles to quote largely from the work of foreign investigators, giving them due credit, and to forget to quote and give credit for as good or even better work done in this country. Our loyalty to ourselves should counteract this tendency. Many an article, valuable and well written, has a long list of quotations from workers abroad though often a very small list of references to those at home. In fact, it almost seems at times as though the work done by our own men was deliberately overlooked.

Except in case of some specific treatment, or some scientific findings, or some recent pharmacologic investigations, the imported medicinal recommendations, especially the prescriptions given for use in certain diseases or conditions, are generally worthless from the standpoint of scientific medication. Unfortunately, and probably thoughtlessly, many of the best medical journals give weight to these importations of fool prescriptions by quoting them as abstracts or in their therapeutic departments. A number of times we have called attention to this error in judgment, as it appears to us.

A large number of these questionable prescriptions come from France, and often carry with them the weight of the opinion of a noted clinician. But generally the mixtures thus offered are irrational, nauseating, many times footless, and often the principal ingredient in the prescription is a simple and well-known drug.

The two following prescriptions[1] have recently been copied from a Paris publication into one of our best journals:

A FORMULA FOR COMBINED STOMACHIC AND LAXATIVE EFFECTS

"℞

Fluidextracti rhamni purshianae,		ʒ v	(20 grammes)
Tincturae nucis vomicae,		ʒ ss	(2 grammes)
Aquae laurocerasi,			
Syrupi,	āā	ʒ ss	(15 grammes)
Aquae destillatae,		ʒ iii	(100 grammes)

"M. Sig.: Three or four teaspoonfuls daily."

1. Copied verbatim from the Paris médical.

Cherry laurel water seems to be used in prescriptions in Germany and France much as an invocation to the gods would be—we put this cherry laurel water in, therefore the prescription will do good—much as a dash of iodoform on a fresh wound was some time since used to insure perfect asepsis.

This is the age in which patients do not desire, and often will not take, nauseating preparations. To increase the disagreeableness of the fluidextract of cascara sagrada by adding more bitter, the tincture of nux vomica, and a sickish sweet, the syrup, in a preparation to increase a patient's appetite (namely, a stomachic) is of course absurd.

If such a patient were given one or two drops of the tincture of nux vomica in a wineglass of water three times daily, before or with the meals, the appetizing effect of the bitter would be insured in the pleasantest possible way.

The laxative, cascara sagrada, could be given more pleasantly once, at bedtime or after supper, in a tablet containing an active preparation of this drug; such active tablets can be procured. This is not to discuss or to decry the practice of giving small doses of cascara sagrada two or three times a day as a laxative treatment, if the physician deems it advisable, but if that is the treatment that he desires he certainly should not make the nauseating combination above presented.

The second prescription is for the relief of amenorrhea, "in which rheumatic disturbance of the uterus is believed responsible":

"℞

Potassii iodidi,		ʒ ii	(8 grammes)
Vini colchici seminis		ʒ i	(4 grammes)
Syrupi sarsaparillae compositi			
Aquae destillatae	āā q. s. ad	ʒ iss	(50 grammes)

"M. Sig.: Three teaspoonfuls a day."

It is so delightfully simple to be able to decide that an amenorrhea is due to a rheumatic disturbance of the uterus, and it would hardly be considered fair to ask the diagnostician if he could prove it.

Certainly, the patient with a rheumatic uterus who is suffering from the pangs (?) of amenorrhea would also suffer from disturbance of the stomach if she took the mixture offered.

Iodin in any form may so stimulate the thyroid gland that it in turn will stimulate the ovaries and uterus to normal activities. But in giving potassium iodid, for instance, it seems hardly necessary to offer this ancient combination which was presented long before anyone now on earth was born (though it is not necessary to determine its exact age), when iodid was administered in the dear old syrup of sarsaparilla comp. with the addition of colchicum in some form when rheumatism or gout was supposed to be present.

It should be remembered that this prescription represents the administration of potassium iodid, wine of colchicum seeds, sarsaparilla, glycyrrhiza, glycerin, ammonia water (fluidextract of glycyrrhiza), fluidextract of senna, sugar, oil of sassafras, oil of anise, and oil of wintergreen. The Pharmacopeia says that the compound syrup of sarsaparilla and the fluidextract of glycyrrhiza may be made with ordinary water, while the prescription very carefully calls for distilled water. This questioning of the character of the water would seem needless if it were not generally absurd. The specification in a prescription of distilled water (which is often not fresh), while the other ingredients of the prescription are made with ordinary water, seems an uncalled-for refinement.

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SATURDAY, DECEMBER 13, 1913

METABOLISM IN CANCER

The study of cancer has been approached from a number of directions, which, for the most part, have been determined by the previous experience of the persons engaged in cancer research. Pathologists have been responsible for the search for infective organisms; biologists have elaborated the investigation of specific types of cell proliferation in connection with neoplasms; physiologic chemists have sought for evidences of fundamental alterations in tissue metabolism. This competition among different lines of scientific endeavor has been wholesome and stimulating to the study of disease, as it has furnished various points of view which would probably never have become recognized had it not been for the highly practical considerations which called forth so much effort on the part of many workers.

Although the investigation of the metabolism of cancer patients has contributed a large and growing literature, in the main it has remained a collection of disconnected facts and observations, some of them interesting in themselves, yet bearing no obvious relation to one another or to any underlying organic disturbance which could not be explained quite apart from the specific disease in question. Thus the protein metabolism is generally found to be exaggerated, and evidences of acidosis and an attendant increased ammonia excretion have frequently been reported. This, however, is little else than the metabolic story of partial inanition which attends the cachectic states that accompany so many chronic diseases. The "demineralization," that is, the gradual undue loss of inorganic elements from the organism, is likewise certainly not to be regarded as characteristic of cancer alone. Considerable has been written from time to time regarding the increased output of products of incomplete metabolism or oxidation in the body. Friedrich Müller and others have long since pointed out that the increased protein decomposition may be so pronounced in cases of advanced carcinoma that it is impossible to maintain the patients in nitrogenous equilibrium despite large food intakes. Some of the European investigators have laid much stress on an apparent increase in the output of so-called "oxyproteic acids" and of unoxidized or "neutral" sulphur compounds in the urine. Here again the fact that the largest figures have been found in carcinoma must be correlated with the consideration that in this disease decreased ingestion of food and intensive disintegration of tissues may go hand in hand. At any rate, without being committed to the view that the findings are pathognomonic of cancer, we may appreciate that an increased urinary elimination of incompletely catabolized protein residues — the *Eiweissschlacken* of the German authors — is present in cancer as it may be in cachexias of other sorts.

Dr. Saxl of the First Medical University Clinic in Vienna has lately attempted to interpret the diverse features of cancer metabolism from some common etiologic point of view.[1] He has called attention to the fact that many of the phenomena of metabolism which we have just reviewed are symptomatic of inadequate tissue oxidation as it is presented in the classic forms of poisoning with cyanid. Can it be that small amounts of cyanid radicals are formed in carcinoma? Hydrocyanic acid is known to arise in the metabolism of plant forms. In the animal organism, in which it is notably poisonous, it is in part detoxicated by becoming transformed into sulphocyanid. Sulphocyanids are not unknown in the secretions and excretions of the human organism.

In attempting to reconcile clinical facts with chemical theory, Saxl has actually observed that the administration of small doses of sulphocyanids leads to unmistakable excretion of the oxyproteic acid residues to which reference has already been made. Here, then, is a parallelism between the protein metabolism of the carcinomatous individual and the metabolic disturbances set up by sulphocyanids. The next step obviously was to search for sulphocyanid in the output of cancer patients. According to Saxl, the content of sulphocyanid in the urine of the latter is undeniably larger than what is found in the kidney output of healthy man or in other types of disease. The increase in sulphocyanid appears to be independent of food intake, anemia or cachexia; and such augmented elimination as may attend some febrile conditions is far smaller than that found in cancer. From these facts he draws the conclusion that there is a disturbance in sulphocyanid metabolism in carcinoma.

We have survived too many hypotheses in regard to this elusive disease to accept every new generalization, however plausible it may appear at first inspection of the evidence; yet we are always glad to recognize every scintilla of new suggestion which may furnish a welcome guide to progress. For the present we must agree with von Fürth that the discovery of a specific urinary test of diagnostic usefulness in carcinoma still remains in the land of blessed hopes.

1. Saxl, P.: Ueber die Störungen im Eiweissstoffwechsel bei Krebskranken (Zugleich ein Beitrag zur Kenntnis der Rhodanausscheidung), Biochem. Ztschr., 1913, lv, 224.

THE LIVER AND KETONURIA

The attempt to find the organs and tissues of the body in which definite physiologic and pathologic processes have their seat is characteristic of the modern study of intermediary metabolism. We are no longer content to ascribe some particular phenomenon to "disturbed nutrition" or "perverted metabolism"; but physiologic science seeks to ascertain and indicate with precision the nature of the upset in question and to find the special part of the organism directly concerned therewith. To some degree this has been successfully accomplished in various instances by the method of exclusion. When, for example, the thyroid or the pancreas is removed from its normal connections with the remainder of the body, the altered functions of the latter betray something of the rôle which each of these organs may be conceived to play in the normal physiologic work of the individual. Again, the method of perfusion of isolated organs has enabled the investigator to compare the intake and output of these individual anatomic parts independently of the simultaneous activity of other organs, and to draw conclusions regarding the degree and sort of participation which they are engaged in under ordinary circumstances. It is, of course, always desirable to control and corroborate the findings of such methods by suitable observations on the intact individual, wherever this is possible.

Largely as a result of perfusion studies it has been taught that the liver is the organ in which the formation of the "acetone bodies"—acetone, diacetic acid, beta-hydroxybutyric acid—goes on. What has hitherto been believed as the outcome of such indirect evidence has now been clinched by more direct experiments. Fischler and Kossow[1] have accomplished the demonstration of the correctness of the current view of excluding the participation of the liver in metabolic activities in large measure by means of the familiar expedient of an Eck fistula whereby the portal blood-supply is diverted directly into the vena cava. Animals thus prepared exhibit far less ketonuria under suitable chemical provocation than do the subjects with normal livers. On the other hand, when by a sort of reversed Eck fistula specially devised by the German investigators in the medical clinic at Heidelberg an exceptionally large blood-supply is furnished to the liver, the output of the characteristic members of the ketone group of compounds is markedly increased. The ketonuria may thereby reach enormous proportions.

Although no one is justified at present in concluding that the liver is the sole organ concerned in the phenomena of ketonuria, the sharp parallelism between the quantities of eliminated ketone derivatives and the varying degree of hepatic participation so far as it can be controlled by altering the richness of the blood-supply to the liver, furnishes the best evidence yet offered.

1. Fischler, F., and Kossow, H: Vorläufige Mitteilung über den Ort der Acetonkörperbildung nach Versuchen mit Phlorrhizin und der partiell ausgeschalteten Leber nebst einigen kritischen Bemerkungen zur sog. Fleischintoxikation beim Eck'schen Fistelhunde, Deutsch. Arch. f. klin. Med., 1913, cxi, 479.

HUMAN PANCREATIC SECRETION

Through the inspiration of Pawlow and very largely under his personal leadership new points of view have progressively developed as to the mode in which the digestive secretions are elaborated. Derived almost entirely from experimentation on animals, the facts have nevertheless received wide application to the conditions that obtain in man. We need only mention the now familiar phenomenon of the psychic secretion of gastric juice, the possibility of stimulating and inhibiting secretion by food factors, and the influence of the latter on the enzyme content of the various alimentary digestive fluids, to indicate some of the novelties which have been introduced into the modern physiology of alimentation.

It requires no extended argument to convince one that such facts and conclusions as are the result of observations on the higher animals deserve to be verified or at least tested in every feasible way on man. Human gastric juice is not unknown in the biochemical laboratory nor has the pancreatic juice of man been an extreme rarity there. Until very recent years, however, these and similar secretions have been studied, when possible, almost solely as specimens in which acidity or alkalinity and various characteristic enzymes were demonstrated. Under the dominance of the newer ideas which involve functional adaptations as well as the mere constituents of composition, revision and renewed investigation have become imperative whenever suitable cases are found and the none too frequent opportunities arise. The pancreatic secretion obtained through a fistula in man carefully examined in the medical clinic of the University of Helsingfors by Holsti[1] has fortified our knowledge as to its function and has served to "check up" the conclusions derived from the facts of animal experimentation. First of all, it has been demonstrated for the first time, we believe, that a so-called psychic secretion of pancreatic juice occurs in man, as has also been verified for the gastric juice,[2] though the psychic factor plays a much less prominent part in the case of the pancreas. The mere sight of food or the act of mastication or swallowing is not sufficient, as it is in the case of the stomach, to induce psychic secretion of pancreatic juice. Inasmuch as the latent period prior to the actual flow of the pancreatic secretion is only one or two minutes, whereas that of the gastric juice is four or five minutes, the pancreatic flow cannot be due to an escape of "psychic" gastric juice into the duodenum, which, it is well known, will provoke a flow of pancreatic secretion. The psychic secretion of the pancreas presumably independent of gastric causes lasts about one-half hour. The continuance or cessation of further secretion depends on the nature of the ingested food. If the discharge from the stomach into the duodenum proceeds, a suitable stimulus for pancreatic flow

1. Holsti, Ö.: Beiträge zur Kenntnis der Pankreassekretion beim Menschen, Deutsch. Arch. f. klin. Med., 1913, cxi, 48.

2. Hornborg, A. F.: Bidrag till kännedom om magsaftsavsöndringen hos människan, Finska läkaresälskapets handlingar, 1903, xliv, 381. Umber, F.: Die Magensaftsekretion des (gastrostomierten) Menschen bei "Scheinfütterung" und Rektalernährung, Berl. klin. Wchnschr., 1905, p. 56.

is thereby furnished. The rate of flow is therefore modified in accord with the influence of different foodstuffs on the secretion into and the rate of discharge from the stomach. With a preponderance of carbohydrates it is prompt and long continued in contrast with the delay and brief effect evoked by pure fats. Thus comparable quantities of widely different foods furnished secretory data of the following order: rice, 51 c.c.; meat, 34 c.c.; oil, 22 c.c. The content of digestive enzymes in the secretion obtained varies widely.

The secretagogue effect of hydrochloric acid on the pancreatic function is familiar. Water is not without a distinct though evanescent action. Soda inhibits the secretion, as is the case in animals. These and other facts which need not be recited here indicate clearly that in their general features the phenomena of pancreatic secretion are essentially alike in man and the dog—the animal which has furnished the classic data on the subject.

NEW TESTS FOR LIVER FUNCTION

On previous occasions we have pointed out the shortcomings of various so-called tests for functional disorders, in particular as they apply to the liver.[1] The fact that few of them measure up to the strict requirement of the specific application intended for them and that most of the proposed methods—usually in the form of tests for the comparative tolerance of sugars—involve physiologic consequences of still undemonstrated character, has placed a limitation to the wide-spread introduction of these diagnostic aids. When the liver, or any other organ, is charged with the responsibility for a certain physiologic duty, and a corresponding task is set to ascertain whether or not the organism is capable of performing it, we must be convinced, on the one hand, that the organ under examination really is normally the effective agent in the transformations involved, and, on the other, that no different tissue can act in a compensatory manner. Only under such carefully controlled circumstances will the failure to accomplish the task be convincing evidence of the temporary functional inefficiency of the organ involved and furnish a dependable diagnostic test.

The very fact that so few of the proposed tests for hepatic function have been able to withstand the criticisms aimed at them, and thus to become a part of diagnostic routine, makes it the more urgent to devise new ones based on carefully investigated premises. Because they appear to be supported alike by sound physiologic considerations, verified by clinical evidence, exploration and necropsy findings we refer to three new tests proposed by Whipple[2] and his collaborators at the Johns Hopkins Hospital. The first of these is the lipase test. This enzyme is present in the blood-plasma or serum of normal individuals in quite constant amount. Experimental injury of the liver, by chloroform, phosphorus or hydrazin poisoning, for instance, will always cause a rise in plasma lipase. The test appears to be of value in certain groups of human cases. In eclampsia, for example, in which liver injury is postulated by many and hemorrhagic portal liver necroses are commonly observed at necropsy, the lipase figures are high; in pernicious vomiting of pregnancy and uremia with convulsions the lipase data are normal, by way of contrast. The Baltimore investigators note that pneumonia, peritonitis, leukemias and various infections may show a rise in lipase to double the normal or even more. This need not confuse one, however, for they remark that probably in such conditions the excess of lipase is referable to liver changes, either liver injury or liver stimulation due to cell-cleavage products circulating in the blood. The lipase test can be carried out with uncomplicated apparatus and by a relatively simple technic.

A second possibility which may develop into a test for hepatic function concerns the fibrinogen normally present in blood-plasma. It has been shown that this blood protein may fluctuate with liver injury, falling to a low content at the time of the hepatic damage and returning above normal during the repair which rapidly follows.[3] From data already available it appears that when the fibrinogen is pronouncedly decreased it indicates a grave condition and may mean advanced liver injury, acute or chronic. The fibrinogen index is sometimes very low in certain cases of hepatic cirrhosis, and thus assumes the gravest prognostic import. In human cases of fatal late chloroform poisoning the fibrinogen content may likewise drop. On the assumption here involved that the liver is intimately concerned with the production of the fibrinogen, which is in turn responsible for the clotting of the blood, it is interesting to note that when the liver is exposed to minor injuries it may respond with an overproduction of fibrinogen. The small damage may be looked on, we are reminded, as a stimulus; and the high fibrinogen content found in pneumonia, septicemia, peritonitis, etc., can be explained by the action of certain substances on the liver epithelium. They may be derived from the disintegration of body-cells or foreign cells, and when very abundant may be able to cause degeneration and even liver-cell necrosis; in lesser amounts they may be imagined to have a stimulating action on the liver.

A third proposed hepatic test makes use of the drug phenoltetrachlorphthalein which has been demonstrated to be excreted by the liver into the bile.[4] This substance, which gives brilliant color responses like the other phthaleins in familiar use, must be introduced in a non-oral manner so that a determination of its appearance in the feces will serve as an index of the extent to which it is poured into the duodenum in the bile. Purgation is employed to furnish the intestinal contents promptly

1. Functional Diagnosis—the Liver, editorial, THE JOURNAL A. M. A., Jan. 25, 1913, p. 287.
2. Whipple, G. H.; Mason, V. R., and Peightall, T. C.: Tests for Hepatic Function and Disease under Experimental Conditions, Bull. Johns Hopkins Hosp., 1913, xxiv, 207.
3. Whipple, G. H., and Hurwitz: Jour. Exper. Med., 1911, xiii, 136.
4. Abel, J. J., and Rountree, L.: Jour. Pharmacol. and Exper. Therap., 1909, i, 231.

when desired. Studies on animals have indicated a remarkable degree of secretory activity and specificity of the liver epithelium. When liver injury is produced by chloroform, phosphorus or similar hepatic poisons the output in the feces may drop to mere traces, depending on the extent of the hepatic damage. The phthalein then comes out in the urine. The drug is not secreted by the intestinal mucosa and in complete obstructive jaundice there is never a trace of phthalein in the feces. Whipple accordingly believes that this new drug gives promise as a functional liver test. It is excreted in the bile through activity of the hepatic epithelium, not that of the bile-duct. Any agent which injures the liver parenchyma or interferes with its functional activity will cause a drop in the phthalein output in the feces.

Only a wide application and unbiased tests in varied conditions of disease will finally determine the clinical value of the interesting reactions here reviewed. To say the least, they promise to furnish experience which will lead to a more accurate definition and discrimination of the anatomic and functional abnormalities of the liver; for they are based on investigated physiologic considerations.

Current Comment

OZONE TO HIDE ODORS

"We have long been of the opinion," says the San Francisco *Argonaut*, "that whatever is unpleasant is bad for us, and we have endeavored in our humble and unscientific way to rule our lives accordingly. That is why we object to cold mutton and to being contradicted. They are bad for us — we felt it was so without knowing the reason." This was apropos of the contention of Dr. Hill of London that ozone is of value, not because it kills germs, but because it removes odors and the like that are injurious because they are unpleasant. Here we have an apparent conflict between esthetics and health. The instinctive shrinking from bad odors is almost a natural protective mechanism. At first thought there comes to mind only one really edible substance possessed of a bad odor, and it has fallen into some disrepute. The man who first remarked, "I smell a rat," voiced a grave suspicion. We have always been suspicious of that which was openly unpleasant, but remembering the man who "had an ax to grind," we have been more suspicious of that sweetness which masks a hidden unpleasantness. When we see a costly, intricate, whirring apparatus and perceive a new peculiar odor, our olfactory organs stimulate our association tracts, and behold, we too, begin to smell a rat!

TRUE RECREATION

We hear much of the need of relaxation for the "tired business man" and the "jaded society woman." Their needs are supposed to be met, in the first place, by amusements devised for inert and vacant minds, and, in the last resort, by the "rest-cure." Meanwhile, as a recent writer[1] observes, our octogenarian colleague whose name is so frequently associated with this therapeutic measure is demonstrating in his own person the fact that one may fill well-ordered days with steady accomplishment and find recreation, not in passivity, but in a complete change of mental occupation. Thirty years ago Dr. S. Weir Mitchell undertook to write a novel as a vacation pastime after his winter practice. The result was "In War Time," which had a large and immediate success. The effect on Dr. Mitchell himself, even before the success of his novel came to corroborate it, was a thorough recreation, a veritable refreshment of faculties that sent him back to his work reinvigorated and satisfied. He has continued since to take up some serious literary labor every summer. His vigor of mind and body now, when well past four score years of age, attest the healthfulness of this practice begun in middle life. It is possible, indeed, that rather too exclusive stress is laid on it in the article mentioned. Doubtless Dr. Mitchell's health and long life are due in large measure to his habit of changing his environment as well as his occupation every summer. At all events, his example is instructive. It is well to remember that many patients whose nervous condition is on the down grade toward nervous exhaustion need, not rest or frivolous amusement, but a new and absorbing mental occupation that will take their minds entirely out of the beaten tracks of their previous interests.

1. Versatility and Dr. S. Weir Mitchell, Century Magazine, December, 1913.

THE CRISIS IN GERMANY

According to our German exchanges, a struggle between the medical profession and the sickness-insurance societies — *Krankenkassen* — is impending, which, in the view of the medical authorities, is a life-and-death contest involving the independence of the medical profession. With remarkable unanimity, the delegates to a special meeting of the Aerztetag, the organization which deals with the economic interests of the profession, representing 23,000 physicians, decided to break off all negotiations with the insurance societies and deal hereafter only with the sick policy-holders individually. Jan. 1, 1914, there go into effect the new provisions of the insurance law extending its benefits to the great bulk of the population. The insurance societies are making strenuous efforts to secure physicians who will devote their whole time to the care of the insured and act as "strike-breakers." It is said that salaries as high as $3,750 (15,000 marks) per annum have been offered for this service. On the other hand, the organized medical men hope to hold their ranks unbroken so as to cripple the insurance societies and prevent their carrying out their contracts. There are mutual charges and recriminations. The medical men claim to have documentary evidence that the representatives of the insurance societies were only pretending to seek a basis of agreement in their negotiations, while they were really bent on defeating the demands of the physicians for the right of the insured to a free choice of their medical attendant. Medical men look on the move as an attempt to reduce them to the rank of paid employees on a starvation wage, thus taking away the freedom and dignity of the profession. The low fees may be appreciated by reading the proposed articles of agreement with the

Berlin Krankenkassen as given in our Berlin letter of Oct. 25, 1913, p. 1550, where we learn that the society proposes to pay an annual sum of $1.25 per capita, while the physicians want at least $1.37.

"MAKING FACES" AS AN AID TO HEALTH

Massage and exercise, at various times, have been advocated as a panacea for many and divers ills. Fernet[1] now proposes the idea that by exercise we may be able to influence favorably the encroaching deafness of the elderly, or that following otitis media. He remarks that children can often move the ears and part of the scalp voluntarily, and some may become quite exceptional in this faculty. Fernet believes that, through exercise, adults will be able to produce such movements. He has devised three series of exercises, as follows: The first consists of grimaces of the face, contracting in turn the muscles of the lips, nostrils and eyelids, aiming ultimately to reach the ear; next the frontal and occipital muscles are contracted alternately and then the muscles above and behind and in front of the ear. The muscles of the eustachian tube are then exercised by directions which he gives fully. He says, "Medical men, knowing the anatomy of the parts, can train their muscles very effectually in this way; others need an instructor to show them." Just what the ultimate outcome of this proposal will be is questionable. We may picture to ourselves tentatively a future period when all around us will be visible a series of grimacing, ear-wiggling elderly men and women in the act of improving their ears and warding off the encroaching deafness of old age. "Physicians, particularly," says Fernet, "need good hearing, and rather than accepting deafness with the fatalism of the Oriental, they should rise up and fight it." If it is to be combated by this method, the word "fight" is a very appropriate one.

1. Fernet: Bull. de l'Acad. de Méd., 1913, lxxvii, p. 209.

Medical News

ARKANSAS

Hospital News.—The cornerstone of the Leon N. Levy Memorial Hospital, Hot Springs, was laid with formal ceremonies by the Little Rock Lodge B' Nai B Rith. The building is to cost when completed $100,000, and will be ready for the dedicatory ceremonies early in March.

Personal.—Dr. John B. Dooley has taken charge of the Little Rock City Hospital.——A formal dinner in honor of Drs. Verne R. Stover and Cory Wassell was given by the local chapter of the Chi Zeta Chi Medical Fraternity, Little Rock, recently. Dr. Stover sails in a few days for China as a medical missionary.——Dr. Ida Joe Brooks, Little Rock, has been appointed a member of the city Homeopathic Medical Board, vice Dr. William E. Green, deceased.

New Officers.—Pulaski County Medical Society at Little Rock, December 1: president, Dr. Alexander E. Harris; secretary, Dr. William T. McCurry.——Arkansas Society of St. Louis, Iron Mountain and Southern Railway Company surgeons at Little Rock: president, Dr. Charles S. Holt, Fort Smith; secretary-treasurer, W. F. Smith, Little Rock.——Third District Medical Society at Cotton Plant: president, Dr. Roscoe T. Gephart, Cotton Plant; secretary, Dr. Edward De W. McKnight, Brinkley.

Railway Surgeons Elect.—The Society of the Missouri and North Arkansas Railway Surgeons met at Heber Springs for organization, November 24, Dr. T. B. Bradford, Cotton Plant, acting as temporary chairman. Heber Springs was decided on as the place for the annual meeting to be held December 22, and the following officers were elected: president, Dr. W. B. Snipes, Aubrey; vice-presidents, Drs. B. Cooper, Everton, and J. A. Henley, St. Joe; secretary, Dr. Cyrus F. Crosby, Heber Springs.

DISTRICT OF COLUMBIA

New Officers.—Washington Obstetrical and Gynecological Society: president, Dr. John F. Moran; secretary, Dr. Truman Abbe.

Schmidt on Dyspepsia.—Prof. Adolph Schmidt was the guest of honor of the District of Columbia Medical Society, November 12, and delivered an address before the society on "Acid Dyspepsia." Prior to the meeting Dr. Schmidt was given a dinner by Dr. William Gerry Morgan.

Women's Clinic Instituted.—An outpatient maternity service has been inaugurated in connection with the Women's Clinic Auxiliary. This service is for the benefit of that class of society which does not wish to accept charity and yet cannot afford to pay high fees. In charge of the service are Drs. Amelia Frances Foye, Alice W. Downey, Isabel H. Lamb, Cora Smith King, Louise Ross and Lillian R. Lekites; assistant physicians are Drs. Lenora C. Volkman, Evelyn Mitchell, E. Alberta Reed and Sarah M. Siewers.

Personal.—The commissioner of pensions has appointed the following three medical boards of pension examiners for the district: first board, Drs. James A. Gannon, John Van Rensselaer, J. Lawn Thompson and Robert M. Ellyson, ad interim; second board, Drs. Joseph R. Biggs, Michael J. Ready, S. Clifford Cox and Lewis A. Walker, ad interim, and third board, Drs. Taylor B. Dixon, Aloysius W. Valentine, Howard Fisher and Charles H. Bowker, ad interim.——Drs. Randolph B. Carmichael and Harry C. Yarrow have been added to the consulting staff of the free night dispensary of Emergency Hospital, Washington.

FLORIDA

New Officers.—Hillsboro County Medical Society at Tampa, December 2: president, Dr. John C. Knight, Plant City; secretary, Dr. Gilbert H. Hodgson, Tampa.——Pinella County Medical Society, organized at St. Petersburg: president, Dr. Lucian B. Dickerson, Clear Water; secretary-treasurer, Dr. William McC. Davis, St. Petersburg.

Personal.—The following staff of local physicians has been appointed for the Duval County Hospital, Jacksonville: medical, Dr. Robert H. McGinniss; surgery, Drs. Paul C. Perry and John E. Boyd; gynecology, Dr. Gerry R. Holden; neurology, Dr. James H. Randolph; laryngology, Dr. William S. Manning; andrology, Dr. Thomas C. Thompson; dermatology, Dr. Joseph Lee Kirby-Smith; pathology and bacteriology, Dr. Henry Hanson. Dr. Paul C. Perry has been elected chairman and Dr. James H. Randolph, secretary of the medical board.

ILLINOIS

Inebriates Barred from State Hospital.—The superintendent of the Watertown State Hospital announces that, as the asylum is now crowded with insane patients, inebriates and other patients not insane will not be admitted to the hospital in the future.

Personal.—Dr. James H. Lacey, Albion, has moved to Denver, Colo., on account of his health. He has been succeeded at Albion by Dr. Ross L. Moter, formerly of Browns. His practice has been taken by Dr. Parmenter of Bellmont.——Drs. Carl E. Black, Elmer L. Crouch and George H. Stacy have moved their offices to the Ayres Bank Building, Jacksonville.

Chicago

Chicago Dispensary Closed.—The Northwest Side Free Dispensary was closed November 28, and the funds of the organization were turned over to the Federated Orthodox Jewish Charities of Chicago.

Personal.—Dr. Charles F. Sanborn, assistant superintendent of Cook County Hospital, has been appointed superintendent of the new Cincinnati General Hospital.——Dr. Herman A. Moje was seriously injured in a collision between automobiles, December 6.——Dr. Karl H. von Klein is reported to be critically ill in Cook County Hospital.

Vision Conservation.—The Illinois Association for the Conservation of Vision and Prevention of Blindness accepted an invitation extended by the Illuminating Engineering Society to attend a demonstration of "Five Years' Progress in Indirect Illumination," December 10. One department of the work of the association is closely connected with the matters of illumination, eye fatigue, etc.

Civil Scrvice Examination.—The Cook County civil service committee announces competitive examinations open to citizens of the United States for appointment on the staff of the Cook County Hospital in the following departments:

Department of:	Date of Examination	Hour
Nervous and Mental Diseases	December 15	7 P. M.
Contagious Diseases	December 16	7 P. M.
Children's Diseases	December 17	7 P. M.
Tuberculosis	December 18	7 P. M.
Skin and Venereal	December 19	7 P. M.
Eye	December 22	7 P. M.
Pathology	December 23	7 P. M.

Appointments are for a period of six years (no salary) with a continuous service of six hours per week throughout the year. Applications for these examinations will be forwarded on request made to Thomas B. Garland, chief examiner, Cook County Civil Service Commission, Chicago.

MASSACHUSETTS

Personal.—Dr. John Wallace, Roxbury, Boston, has returned from Europe.——Dr. Alexander C. Eastman has been elected president and medical director, Dr. Oscar W. Roberts a vice-president, and Dr. Lawrence D. Chapman, a director of the Springfield Babies' Feeding Association.

Community Sanitation.—Eight towns with Wellesley Hills as a center are now guarded from infectious diseases by bacteriologic stations having a main station at Wellesley Hills. The towns are Belmont, Framingham, Wellesley, Needham, Weston, Melrose, Canton and Winchester. This idea of community sanitation was originated by Prof. Earl B. Phelps of the Massachusetts Institute of Technology, sanitary engineer of the Board of Health. Each town contributes from its budget a certain sum toward the maintenance of the cooperative health service and if there is a deficit, it is made up by the institute.

MINNESOTA

Fire in Railroad Hospital.—Fire in the Northern Pacific Hospital, Brainerd, November 26, caused $5,000 damage, and necessitated the removal of patients from the medical ward of the institution. No casualties occurred.

Tuberculosis Removal Law Enforced.—The health commissioner of Minneapolis on November 20 made first use of the state law which authorizes health officers to remove tuberculosis patients from private homes to public hospitals in order to prevent the spread of infection.

Personal.—Dr. Arthur W. Ide, Brainerd, has been appointed division surgeon for the Northern Pacific Railroad.——Dr. Charles N. Hensel, St. Paul, fractured his right forearm while cranking his automobile, November 24.——Dr. Thomas Lowe, Pipestone, was elected president of the Southwestern Minnesota Medical Society at its annual meeting held in Worthington, November 13.

Hospital News.—The formal opening of the West Side General Hospital, St. Paul, took place November 27. The institution is to be operated by the Evangelical Hospital and Deaconess Home Association, which has purchased the old German Hospital and about two acres of land adjoining. About $8,000 has been expended for interior furnishing and decorations and it is planned to raise a fund of $100,000 for maintenance and improvement.

Southern Minnesota Physicians Hold Meeting.—The Southern Minnesota Medical Association held its annual meeting in Mankato, December 3. Dr. Robert H. Babcock, Chicago, gave an address on "Infections of the Heart," followed by a clinic, and it was voted to hold the midsummer meeting in Winona in August next. The following officers were elected: president, Dr. Hugh F. McGaughey, Winona; vice-presidents, Drs. John H. Adair, Owatonna, and Clifford C. Leck, Austin; secretary, William T. Adams, Elgin (reelected), and treasurer, Dr. George F. Merritt, St. Peter (reelected).

MONTANA

Personal.—Dr. Joseph A. Tremblay, Butte, has been reappointed physician of Silverbow County.——In the case of Dr. C. V. Norcross, Butte, against Peter Scherr, in which suit was brought for $1,302 for professional services, the jury returned a verdict in favor of the plaintiff, November 26.

Hospital Reopened.—The Samaritan Hospital, Glendive, which was closed in September last, was reopened November 19, under the auspices of local physicians, and will hereafter be known as the Glendive General Hospital. At a meeting of the physicians interested in the new hospital, November 17, the following officers were elected: president, Dr. R. H. Beech; vice-president, Dr. Baldwin F. Consler, and secretary-treasurer, Dr. M. G. Danskin.

Warning.—Dr. Gaylord Warstell, Big Sandy, warns against a Mr. E. S. Armstrong, a well-fed, well-groomed, round-eyed man, about 5 feet 7 inches in height, weighing 180 pounds and apparently about 35 years of age, with quilted cloth hat and gray suit. He claims to be a representative of a Minneapolis tailoring house and makes an offer of a reduction for cash for clothing, taking the physician's check in payment. Dr. Warstell asks that anyone knowing Armstrong's home address or present whereabouts will send this, with such other information as he may possess, to him.

NEW JERSEY

Sterilization Law Void.—The supreme court, at Trenton, November 18, set aside as unconstitutional the act of 1911, providing for the sterilization of epileptics, feeble-minded, criminals and other defectives.

Personal.—Dr. Mortimer J. Lampson, superintendent of the Jersey City Hospital, has resigned.——Dr. William D. Miningham, Newark, has been appointed a member of the consulting staff of the Essex County Hospital, Overbrook.

Children's Colony to Be Established at Burlington.—The proposal to establish a Burlington County colony for the care of defective children was assured at a meeting of the colony committee, when financial report showed that more than half of the $8,000 needed for the erection of buildings had been raised by private subscriptions. The work will be under the direction of the state authorities and the faculty of the Vineland School for Feeble-Minded Children have been asked to cooperate in its management.

NEW MEXICO

New County Society.—At the last meeting of the State Medical Association, held in Albuquerque, the McKinley County Medical Society was granted a charter.

Personal.—Dr. Leroy S. Peters has purchased a part interest in the Albuquerque Sanatorium and will be associated with Dr. Abraham G. Shortle in the work of that institution.——Dr. and Mrs. Frank E. Condert, Gallup, have moved to Tempe.

Charges against Physicians Dismissed.—The indictments against twenty-five physicians of Albuquerque for failing to file death certificates with the county clerk at Bernalillo County were dismissed November 19, on motion of the district attorney.

NEW YORK

Personal.—Dr. M. J. McGrath, Oswego, has been appointed district surgeon for the New York Central System, vice Drs. James E. Mansfield and David D. O'Brien, resigned.——Dr. Leslie M. Wilkens, Lackawanna, was seriously injured in a collision between his motor-car and a street-car in Buffalo, November 27.

To Study Medical Laws.—The American Association of Medical Jurisprudence was incorporated on December 5 by the secretary of state. The object of the association is the investigation and advancement of the science of medical jurisprudence. The study will be conducted principally in the State of New York and the United States of America. The directors are Reynold Webb Wilcox, Alfred E. Ommen, Charles P. Barney, John C. West and Oscar W. Ehrhorn.

New York City

Godlee Honored.—Sir Rickman J. Godlee, president of the Royal College of Surgeons, was made an honorary member of the National Institute of Social Sciences, December 3, and presented with a gold medal in recognition of his services to humanity.

Healthful Year for New York.—The Bureau of Records announces that the city has had a most healthful year, the death-rate for the first eleven months of the year being 13.77 per 1,000 population, as against 14.08 for the corresponding period of 1912. For the week ended November 29, the death-rate was 12.51 per 1,000 population, as against 12.62 for 1912.

New York County Medical Society Elects.—At the one hundred and eighth annual meeting of the Medical Society of the County of New York, the following officers were elected for the following year: president, Dr. T. Passmore Berens; vice-presidents, Dr. Howard Lilienthal and Dr. Frederick E. Sondern; secretary, Dr. John Van Doren Young; assistant secretary, Dr. J. Milton Mabbott, and treasurer, Dr. Charles H. Richardson.

Another Building for Montefiore Home.—This institution, which has just moved into its new buildings, which were built at a cost of $2,000,000 and which accommodate 630

patients, is now planning to provide another building for the accommodation of persons able to pay wholly or in part for their treatment, and $200,000 has already been subscribed for this purpose. Until this building is completed all patients are cared for free of charge.

Site for Mothers' Home.—Mrs. Rudolph A. Muller has donated two acres of land as a site for the Home for Expectant Mothers, of which Mrs. Robert H. Sayre is president. She will also donate all the milk, fruit and vegetables required for the home from her own estate. The raising of funds for the buildings has already been begun. Each patient will have her own room during her month's stay in the home, and after leaving it will be under the care of the Prenatal Feeding Association, which will establish a chain of restaurants where mothers may get their lunches or will send visiting nurses to the homes to see that the mothers get proper food there.

Needs of Hospitals.—In the report of the Hospital Saturday and Sunday Association emphasis is laid on the increasing cost of hospital maintenance and on the decreased receipts from patients. During the past year it cost $4,932,309 to run the forty-seven hospitals of the association, an increase of $382,441 over the previous year. The income of the forty-seven hospitals last year was $18,706 less in payments from patients, $25,657 less from the city, and $21,890 less from endowment. In spite of this decrease the hospitals gave 134,272 days of hospital service, making a total of 2,084,442 days' treatment, of which 1,291,442, or 62 per cent., were entirely free.

Laryngological Society Celebrates Anniversary.—On November 25 the New York Laryngological Society, said to be the oldest society in the world devoted exclusively to that specialty, which was merged in 1885 with the Laryngological Section of the New York Academy of Medicine, celebrated its fortieth anniversary. Dr. William W. Carter, chairman of the section, presided. The historical address was delivered by Dr. Clinton Wagner. Dr. D. Bryson Delavan delivered a commemorative address and presented a bronze tablet and several historical memorabilia, and Dr. Carter accepted the tablet on behalf of the society. At the conclusion of the formal exercises, several short addresses were made by various members of the society and guests.

NORTH CAROLINA

Sanatorium Opened.—The Wilmington Red Cross Society has completed a sanatorium about two miles from the city for the treatment of tuberculosis. The institution contains accommodations for twenty patients and provides for colored as well as white patients.

Hospital News.—The Good Hope Hospital was opened in Duke recently. Thanksgiving Day was made special donation day for the institution, which received benefactions from more than two hundred citizens of the town and vicinity.——A stock company with a subscribed capital of $30,000 has been organized at Elizabeth City to build a general hospital. Four of the seven directors are physicians of the city.

Mental Hygiene Conference.—The State Conference on Mental Hygiene was held at Raleigh, November 28 to December 2, under the direction of Dr. Albert Anderson, superintendent of the State Hospital for the Insane. As a result of this conference the North Carolina Society for Mental Hygiene Study was organized at Raleigh with a provisional executive committee composed of Dr. John McCampbell, superintendent of the Morgantown State Hospital, William W. Faison, superintendent of the Goldsboro, and Dr. Albert Anderson, superintendent of the Raleigh State Hospital. Dr. Anderson is secretary of the committee.

OHIO

Society Adopts Memorial Resolution.—Summit County Medical Society at its meeting, November 4, adopted resolutions of sympathy and regret regarding the death of Dr. Herman Christian Theiss, Akron.

Hospital News.—The Barberton Hospital has been purchased by A. A. Besaw from Mr. and Mrs. S. A. Carpenter who had operated the institution since 1910. During the existence of the hospital, 630 patients have been treated with thirty-five deaths.

Hospital Staff Members Banqueted.—In celebration of the twenty-seventh anniversary of the connection of Drs. George B. Evans and Charles H. Humphreys with St. Elizabeth's Hospital, Dayton, they were given a complimentary dinner by the sisters and doctors of the staff, November 24. Dr. Henry S. Jewett, president of the staff, officiated as toastmaster.

Hospital News.—It is announced that sufficient funds have been collected to warrant the construction of a new Jewish hospital at Cleveland in the spring. It is planned to have an institution of 100 beds, to cost about $100,000.——St. Vincent's Charity Hospital, Cleveland, is having a week's campaign to raise $250,000 for the construction of a new wing for the institution.

Personal.—A. J. Ranney, for twelve years superintendent of Lakeside Hospital, Cleveland, has resigned on account of ill-health and has been succeeded by Dr. Andrew R. Warner.——Major Vernon Roberts, National Military Home, Dayton, has been appointed chief surgeon at the Milwaukee Soldiers' Home, vice Dr. Oscar Chrysler, deceased.——Drs. William T. Corlett, Henry J. Gerstenberger, Norman W. Ingalls, David Marine, and Vernon C. Rowland have returned from abroad.

New Officers.—Summit County Medical Society at Akron, December 2: president, Dr. David H. Morgan; secretary, Dr. Alexander S. McCormick, both of Akron.——Allen County Medical Society at Lima, November 18: president, Dr. Oliver S. Steiner; secretary, Dr. Paul Steuber, both of Lima.——Ashland County Medical Society, fifty-fourth annual session at Ashland, November 18: president, Dr. Frederick V. Dotterweich; secretary-treasurer, Dr. Cortland B. Meuser, both of Ashland.

Western Reserve Notes.—Dr. Oscar T. Schultz, assistant professor of pathology, has been appointed professor of pathology at the University of Nebraska.——Dr. A. A. Johnson, formerly pathologist of the City Hospital, has been appointed instructor of pathology at the University of Nebraska.——The department of pathology has moved its teaching quarters from the medical school to the pathology building of the Lakeside Hospital, that the instruction may be given in closer conjunction with the clinic and autopsy rooms.——Dr. C. M. Winn, formerly resident pathologist at St. Thomas Hospital, Panama, C. Z., has been appointed resident pathologist at Lakeside Hospital.——Drs. Hunter Robb and George N. Stewart are spending their leave of absence in Europe.——Dr. Carl A. Hamann, dean of the school, is seriously ill with streptococcus infection of the arm.

OKLAHOMA

Personal.—Dr. A. S. Riddell, Chickasha, has been appointed deputy internal revenue collector for Oklahoma.——Dr. Curtis R. Day, Oklahoma City, has been elected president, and Dr. R. H. Riley, Oklahoma City, secretary-treasurer of the Oklahoma Association for the Prevention of Tuberculosis.

PENNSYLVANIA

Personal.—Dr. James A. Peeples, Peters Creek, fell in his barnyard, November 29, fracturing his right leg.——Dr. Edward F. Menger, Fort Lauden, has been appointed resident physician of the Carlisle Indian School.——Dr. Edward B. Shellenberger, Warren, has been appointed assistant medical director of the state dispensary by State Commissioner of Health Dr. Samuel G. Dixon.

Appointments in the Medical Department, University of Pittsburgh.—The following new appointments to the faculty have been made: Dr. W. E. Gardner, assistant demonstrator in anatomy; Dr. J. W. McMeans, assistant in clinical pathology and demonstrator in pathology; Dr. J. C. Irwin, instructor in obstetrics; Dr. R. J. Cary, demonstrator in medicine; Dr. Arthur Miltenberger and John Howard Seiple, assistant demonstrators in obstetrics, and Mr. Orville J. Walker, assistant in physiology and pharmacology. The following increases in rank have likewise been provided for: Dr. Chris Gardner, from assistant demonstrator to demonstrator in anatomy; Dr. Walter L. Croll, from instructor to assistant professor in obstetrics.

Public Drinking-Cups Prohibited.—On December 1 the advisory board of the State Board of Health prohibited the use of the public drinking-cup and the common towel. Barbers are also forbidden to brush the eyebrows of customers with a common brush, and proprietors of public eating-houses and restaurants must thoroughly cleanse all dining-room utensils after each individual use. The school-boards, clerks of council and health officers have received copies of the new regulations. This order has resulted in the disappearance of glasses from all public drinking-fountains at the Capitol, and a combination public drinking-bowl and faucet has been installed for the use of clerks. Paper towels have also been placed in all departments. Episcopal clergymen are interested to know whether the new order will interfere with the common communion cup used in the service, as the common cup is regarded as part of the ritual.

Philadelphia

Personals.—Dr. George W. Outerbridge has been selected to fill the vacancy of the visiting obstetrical staff of the Maternity Hospital of Philadelphia, caused by the resignation of Dr. Levi J. Hammond.

Gift to the University.—The descendants of Dr. Priestly, the discoverer of oxygen, have presented the University of Pennsylvania with a chemical balance which was used by Dr. Priestly in his experiments more than 130 years ago.

Serum for Influenzal Meningitis.—Physicians of Philadelphia and adjacent territory can now obtain the new serum for treating influenzal meningitis by applying to Dr. Paul A. Lewis, director of the Ayer Clinical Laboratory at the University of Pennsylvania.

Four Jefferson Professors Honored.—Three hundred physicians attended the reception given by Daniel Baugh in honor of four professors emeritus of Jefferson Medical College. The guests of honor were Drs. William W. Keen, William Joseph Hearn, James C. Wilson and James W. Holland.

University Medical Societies Merged.—The John Morgan Medical Society has been formed at the University of Pennsylvania by the consolidation of the H. C. Wood, Tyson, Ashurst and Penrose societies. The new society takes its name from the founder of the medical school.

Volunteer Medical Staff.—A volunteer medical staff has been formed, composed of physicians interested in the work of the West Branch of the Y. M. C. A., whose new $250,000 building at Sansom and Fifty-Second streets was opened December 1. They are Dr. Sidney E. Bateman, Dr. Paul Elmer Reiff, Dr. Gordon Saxon, Dr. Walter J. Snyder, Dr. Samuel McClary, III; Dr. Andrew F. Snively, Dr. Harrington L. Dickinson, Dr. Oscar G. Fegley and Dr. John H. Shaw.

Little Mothers' Leagues Formed. — December 2, Little Mothers' Leagues were formed in eleven Philadelphia schools under the auspices of the Child Federation. The establishment of these classes is only a beginning. They are not compulsory, the children being chosen by the teacher of the various schools. The teachers of the various classes are themselves instructed in the day's lesson and merely repeat it to the children. The instruction is given the teachers by Dr. Samuel McClintock Hamill.

Medicine of Assyria and Babylonia.—An address will be delivered by Prof. Morris Jastrow of the University of Pennsylvania on "The Medicine of the Babylonians and Assyrians," before the Section on Medical History of the College of Physicians, in Thomson Hall at the college, December 16. This will result from the noted Assyriologist's translation of the ancient tablet lately presented to the college by Drs. S. Weir Mitchell and Richard H. Harte, the Assyrian medical code being for the first time revealed.

Advancing Joint Lecture Course.—In order that the Rush Society may be truly representative in its activity, a revision of its constitution and by-laws in two particulars was voted at the special meeting called for that purpose. The name of the society has been lengthened to read "The Rush Society for the Correlation and Support of Medical and Biological Lectures in Philadelphia," and the distinction between active and associate members has been abolished and it is now provided that "any person interested in the objects of the society may become a member on the payment of the annual dues of $2." It is believed that by these changes the effectiveness of the lectures in Philadelphia will be increased, since while each lecture will remain autonomous, the united effort will aid all to obtain an increase in publicity, attendance and financial support.

SOUTH CAROLINA

Tuberculosis Clinic Has Permanent Quarters.—The tuberculosis clinic of the Columbia Associated Charities opened November 26 in its new quarters at 917 Main Street. The clinic is open daily from 12 to 1 o'clock. Two physicians are in attendance.

Faculty Changes.—The trustees of the Medical College of the State of South Carolina, Charleston, at their meeting November 25, elected Dr. Charles P. Aimar, Charleston, professor of general surgery, vice Dr. Charles M. Rees, deceased; Dr. Allen J. Jervey, professor of the principles of surgery and surgical pathology, and Dr. Daniel L. McGuire, assistant professor of surgery.

New Hospital Opened.—The Camden Hospital was opened in Camden, December 1. The hospital was built by Bernard M. Baruch in commemoration of the beginning of the medical career in that town of his father, Dr. Simon Baruch, New York City. The hospital has an endowment of nearly $100,000, a bequest from John Burdell, and is unique as a rural hospital in that it has a dispensary attached at which incipient cases of tuberculosis may early be detected.

New Officers.—Greenville County Medical Society at Greenville, December 1: president, Dr. Charles O. Bates; secretary, Dr. Samuel G. Glover (reelected), both of Greenville.——Charleston County Medical Society at Charleston, November 6: president, Dr. William H. Johnson; secretary, Dr. Michael M. Edwards (reelected), both of Charleston. Arrangements for building an annex to the Hospital and Training School for Nurses were submitted, and a committee was appointed to secure donations for the furnishing of the new rooms.

WISCONSIN

New Officers.—West Wisconsin District Medical Society: tenth annual meeting at Eau Claire, November 25: president, Dr. Eugene E. Tupper; secretary, Dr. Joseph C. Baird, both of Eau Claire.

Settlement of Minahan Estate.—In the Probate Court in Fond du Lac, November 25, final settlement was made of the estate of Dr. William E. Minahan, a victim of the *Titanic* disaster. The estate is appraised at more than $83,000.

Protest by Medical Society.—The Waukesha City Medical Society has passed resolutions protesting against any action by the city council which will lessen the investment of $15,000 in the hospital building. In the opinion of the society, a hospital with a capacity of less than fifteen or twenty beds cannot be made self-supporting.

Osteopaths May Not Practice Without License.—The Wisconsin Superior Court has handed down a decision in the case of W. A. Arnold, sheriff of Milwaukee County, versus Herbert Schmidt, setting forth that osteopaths cannot practice medicine in Wisconsin without first obtaining a license. The sheriff was directed to take the defendant into custody.

Dinner to New Professors.—The medical faculty of Marquette University, Milwaukee, gave a dinner to the new professors in the medical department at the Hotel Pfister, December 6. Drs. Albert J. Ochsner and Henry B. Favill of Chicago, Professor Bardeen of the University of Wisconsin, and the dean of the medical department of the University of Minnesota were among the speakers.

Personal.—Dr. William E. Scollard, Milwaukee, is reported to have been adjudged insane, November 21.——Dr. Lewis A. Kliese, Milwaukee, has been appointed examining physician for Milwaukee County of the insurance department of the state.——Dr. William F. Lorenz of the staff of the Mendota City Hospital, has been detailed by the U. S. Public Health Service to make a special study of pellagra.——Dr. James W. Frew, Milwaukee, has been commissioned Major, M.C., N. G. Wisconsin, and assigned to duty with the First Infantry.——Dr. Charles H. Lemon has been elected president of the Milwaukee branch of the American Electric Railway Association.

County Sanatorium Notes.—Dane, Waupaca and Winnebago counties have voted down the proposition to use county tuberculosis sanatoriums.——Lakeside Sanitarium, Oshkosh, was formally opened November 26, and on this occasion there was a joint meeting of the Waukesha City and County Medical Societies.——Sunnyrest Sanatorium, the Racine County Institution for the care and treatment of tuberculosis, was finally turned over to the county board, November 27. The building was constructed and equipped for less than $35,000.——The county board of Marinette County has appropriated $20,000 for a county tuberculosis sanatorium.——Brown County Board of Supervisors has appropriated $25,000 for a tuberculosis sanatorium.

GENERAL

Tri-State Physicians Hold Meeting.—At the thirtieth annual meeting of the Tri-State Medical Association of Mississippi, Arkansas and Tennessee held in Memphis, November 11 to 13, the following officers were elected: president, Dr. John Darrington, Yazoo City, Miss.; vice-presidents, Drs. W. D. McCalip, Yazoo City, Miss.; E. C. McDaniel, Tyronza, Ark., and H. B. Everett, Binghamton, Tenn.; secretary, Dr. J. L. Andrews, Memphis (reelected), and treasurer, Dr. J. A. Vaughan, Memphis (reelected).

Bacteriologists to Meet.—The annual meeting of the Society of American Bacteriologists will be held in Montreal, Dec. 31, 1913, and Jan. 1 and 2, 1914, under the presidency of

Prof. C. E. A. Winslow. The meeting of January 1 will be held at McDowell College, the other meetings at the medical building of McGill University. The president's address on "Characterization and Classification of Bacteriologic Types" will follow the annual dinner at the University College, January 1. Dr. A. Parker Hitchens, Glen Olden, Pa., is secretary of the society.

Anti-Alcohol and Narcotic Advocates Meet.—The forty-third annual meeting of the American Society for the Study of Alcohol and Other Narcotics was held in Philadelphia, December 3 and 4, and the following officers were elected: president, Dr. John J. Kindred, New York City; vice-presidents, Drs. Alfred Gordon, Philadelphia; Daniel H. Kress, Loma Linda, Cal.; Thomas A. MacNicholl, New York City; Tom A. Williams, Washington, D. C., and Col. L. Mervin Maus, M. C., U. S. Army; secretary, Dr. G. A. Benton, Miami, Fla.; assistant secretary, Dr. De Lancey Carter, New York City; corresponding secretary, Dr. Thomas D. Crowthers, Hartford, Conn., and treasurer, Dr. Pitts Edwin Howes, Boston.

Educational Effect of Medical Inspection in the Schools.—According to the weekly *Bulletin* of the New York City Board of Health the percentage of children requiring treatment for defects other than those of the teeth has declined from 44.20 in 1909, to 30.1 in 1913. The percentage of those requiring dental treatment declined from 57 in 1909, to 49.4 in 1912; defective vision from 13.4 in 1909, to 7.3 in 1912; defective nasal breathing from 18.7 in 1909, to 7.6 in 1912; enlarged tonsils from 22 in 1909, to 10.4 in 1912; malnutrition from 3.14 in 1909, to 2.8 in 1912. By persistent follow-up work in the homes the percentage of glasses procured has increased from 27 in 1909, to 50.5 in 1912, and of tonsil operations from 22 in 1909, to 29 in 1912.

FOREIGN

Penalized for Alleged Violation of Professional Secrecy.—Our exchanges state that the insurance company refused to pay the accident insurance on a workingman who had been killed in an industrial accident, basing this refusal on the fact that the physician of the hospital where the man had died (Lille, Belgium) had found at necropsy that the victim had leukemia, and had so informed the insurance company doctor when he inquired in regard to the necropsy findings. The widow brought suit against the hospital physician claiming violation of professional secrecy. The local court acquitted him but the recent decision of the court of appeals held him responsible both from the civil and the pecuniary standpoints.

CANADA

News Items.—It is expected that in 1915 courses will commence in the new British Columbia University, of which institution Dr. Frank F. Wesbrook recently accepted the presidency.——Winnipeg had 192 cases of infectious diseases in October with nineteen deaths. Regina, Sask., had sixty-three cases of typhoid fever in October.——Medical inspection of factories to eliminate conditions producing "industrial diseases," will shortly occupy the attention of the Toronto health department.——The Ontario Board of Health has ordered Ottawa to provide a new and safe water-supply.

Hospital News.—Mr. John Ross Robertson, Toronto, has donated $10,000 for the purpose of furnishing the new wing of the Hospital for Sick Children. The city of Toronto gave $250,000 for building this new wing.——At Chatham, Ontario, December 1, Dr. John L. Bray, Toronto, registrar of the Ontario Medical Council, opened a new wing to St. Joseph's Hospital.——The Home for Incurable Children, Toronto, cared for thirty-one children during the past hospital year. Two new patients were admitted during the year, three were discharged and one died. The receipts for the year were $15,508.11.

Personal.—Dr. L. N. MacKechnie, port officer at Vancouver, B. C., has received instructions from the Director-General of Public Health at Ottawa, Dr. F. Montizambert, to make an inquiry into the prevalence of bubonic plague-infected rats that are now so prevalent at Seattle and Tacoma.——Dr. George A. B. Hall, medical officer of health, of Vancouver, states that city has not been so free in the last five years from infective diseases as at present.——Dr. Neil McNeil, Prince Rupert, B. C., has left for Europe.——Dr. Louis Laberge, medical officer of health of E. Montreal, has resigned after twenty-eight years' service.——Dr. Clarence L. Starr, Toronto, has been appointed chief surgeon at the Hospital for Sick Children.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 29, 1913.

The British Medical Association and the Insurance Act

Dr. Alfred Cox, medical secretary to the British Medical Association, has delivered an address to the Glasgow and West of Scotland branch in which he foreshadowed important changes which were likely to occur in the relations between the profession and the government in the working of the National insurance act. He pointed out that the individual physician was quite able to look after his own interests when dealing with individual patients, but when it came to dealing with organized bodies he must have some association behind him, and there was none even remotely eligible for this purpose except the British Medical Association. In future the profession would have many more dealings with organized bodies than it ever had in the past, and instead of doing anything to split it up into classes and thereby weaken it, every man should do his best to strengthen the one association which could progress to speak in the name of the profession. Some of the physicians who had not gone on the panels (that is, served under the act), were saying that the association had now become a pro-panel body and was of no use to non-panel physicians. The history of the association showed that there had never been a time when the interest of one section of the profession had not been balanced against the interests of other sections, and on the whole this had been fairly done. Consolidation of the profession was important, for there was nothing to hope for from either political party. The danger in front of the profession was that the prominent politicians in favor of a whole-time service would have their way. At the end of 1915, when the present system of medical benefit had to be reviewed, there would be a bigger fight in front of the profession than it ever had. It would have to repel assertions that the remuneration was excessive for the work done, and attempts would probably be made to reduce the remuneration, or what amounted to the same thing, increase the work. Any successful attempt to reduce the remuneration would have a reflex action on other forms of medical remuneration.

Another question which would come up would be the provision under the act of medical attendance on the dependents of insured persons. If they were included, about three-fourths of the whole population would be swept in. The panel service had the inherent defects of contract practice, but owing to the efforts of the association it included many good points of private practice as compared with the old lodge practice and was infinitely superior. The lodge doctor, if he did not keep on good terms with the small clique which ruled every lodge, was under a considerable risk of losing the whole society. This could not happen in panel practice and the remuneration was much better.

With regard to the proposed increase of the subscription to the association (from $6 to $10 a year), he asked that if it was proposed to begin *de novo* to organize the profession and provide a first-class medical journal, would they commence with a subscription of $6 a year? This subscription had been based on old conditions which had long since passed. The profession was making greater demands on the association every year. It was also proposed to create a special fund which could be used for exigencies which might arise. A great source of weakness in the struggle which had just taken place with the government was that the association had no fund except on paper out of which it could say to a physician who was hesitating whether or not he would follow the lead of the association, "If you will back up the rest of the profession we have money to devote to seeing you through any financial difficulty which may arise."

Therapeutic Possibilities of Polonium

Sir William Ramsey, the eminent chemist, speaking at a meeting of the British Radium Corporation, which is producing radium from certain ores in Cornwall, held out the prospect that there were other substances in all radium ores which might be used therapeutically. They were polonium, ionium and actinium, which at present were chemical curiosities that had not been extracted in any great quantity, though there was no very great difficulty in extracting them. He was in hopes that polonium, which was perhaps most easily produced, might prove to have therapeutic qualities. Polonium was somewhat analogous to selenium, tellurium and also to bismuth, the therapeutic qualities of which had been tested. These three elements remained in the system

for some length of time, and were then excreted, but they had practically no therapeutic qualities. Polonium differed from them entirely in that it gave off alpha-rays just as radium did, and the potency of radium for therapeutic purposes appeared to depend on the alpha-rays. Radium could not be administered as a medicine. It was too expensive and probably too dangerous, as he did not believe it would be easily eliminated from the system; but the three substances he had mentioned were eliminated in about three months, and his impression was that polonium might produce its effect for about that time and then be eliminated. Of ionium and actinium he could say less, but possibly they might replace radium for the uses for which it was at the moment employed.

The Passing of Malaria

At a meeting of the Royal Colonial Institute, Dr. Malcolm Watson gave an account of his work in the prevention of malaria in the Federated Malay States. He showed that at any rate as regards dry cultivation, pool-breeding mosquitoes could be abolished by open drainage, that stream-breeders could not be so abolished, but required drainage, and that countries with no hill-stream breeders had no hill malaria. He described investigations which he had carried out in other parts of the world where malarious conditions more or less prevailed, in the Duars at the foot of the Himalayas, and in the Jeypore hills in Madras; in Sumatra, Panama, British Guiana and Barbadoes, and declared that the new knowledge had given absolute control over the malaria of low, flat land, and high hopes of control over that in hill-land. There was also every hope of abolishing malaria from rice-fields. He believed that the prevention of malaria, the improvement in health of the agriculturist and the cultivation of the land were all intimately connected, and that what helped the one would improve the other.

Alfred Russel Wallace

Alfred Russel Wallace, who discovered the principle of natural selection independently of Darwin, has died in his ninety-first year. He was born at Usk in Monmouthshire and adopted the profession of land surveyor. At an early age he was attracted to natural history, in which he took a great interest. In 1847 he undertook a voyage to South America as a naturalist and sent home many communications to scientific societies during the four years. In 1854 he went on an expedition to the Malay Archipelago, where he remained for eight years. Here he laid the foundation of the principle of geographical distribution which has since been known as "Wallace's law," and he began to study the question of the origin and mutability of species. While pondering over these subjects he recalled the principles laid down many years before on the limitation of the human population by Malthus, and then the idea of natural selection came to him as by a sudden inspiration. About the same time Darwin was led to the same discovery, curiously from reading the same work. They both sent papers on the subject to the Linnean Society, each unaware of the other's work. The society decided that the two papers should be read at the same meeting, which took place July 1, 1858. To the end of his life he took a great interest in biologic subjects and was also an ardent democrat and social reformer.

The Prevention of Glass-Workers' Cataract

Sir William Crookes, the eminent scientist, communicated to the Royal Society some experiments in which he has been engaged for six years with the object of providing protecting glasses to prevent damage to the eyes of glass-workers and others exposed to severe glare. The problem was to find a means of cutting off the heat-rays that are injurious to the eyes of glass-workers, in some cases predisposing to cataract, if not actually causing it. The experiments were conducted by mixing various metallic oxids with soda-glass. The metals used were cerium, chromium, cobalt, copper, iron, lead, manganese, neodymium, nickel, praseodymium and uranium. Each specimen of glass was cut and polished in plates 2 mm. thick. The glass was tested by the spectroscope to determine which of the light-rays were cut off, and by a specially devised instrument to find out what proportion of heat-rays was arrested. Sir William Crookes succeeded in preparing a glass that cut off the chemical, the ultraviolet and the heat-rays, but he could not avoid some light-rays being also cut off. It was not an advantage to have absolutely colorless glass, because a very bright light such as that from white cliffs, expanses of snow and electric light was known to be injurious to the eye, and therefore a tinted glass combining good obstruction to heat radiation and to ultraviolet rays was the best to aim at. He had produced glasses which cut off over 90 per cent. of heat radiation, which were opaque to the invisible ultraviolet rays, and were sufficiently free from color to be capable of use as spectacles. Several glasses of the type described were demonstrated to the society, showing how a neutral tint could be produced by making use of both cobalt and nickel. In the course of the discussion that followed attention was drawn to the influence of potassium in glass in modifying the colors caused by the admixture of nickel oxid.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 28, 1913.

Dedication of the Monument to Professor Dieulafoy

November 23 the monument in memory of Professor Dieulafoy was dedicated at the Hôtel-Dieu, and placed at the entrance of the Trousseau Amphitheater where Dr. Dieulafoy taught for many years. Dieulafoy's favorite pupil, Professor Widal, in an interesting address retraced his master's glorious career as a scientist and teacher.

Admission of Women into Administrative Offices of the Public Charities

The *Journal officiel* publishes an important circular addressed by the minister of the interior to the prefects with regard to the employment of women in the administrative offices of the public charities. Women are going to be necessary in the administration of the laws, which are about to become effective, with regard to aid to large families and to women in childbirth. The last-named law makes the giving of aid conditional on the observance of prescribed conditions with regard to rest and hygiene. Moreover, it especially favors mothers who during the period of aid nurse their children themselves. It is undeniable that women would be much better qualified to see that these conditions have been observed as far as is compatible with the demands of domestic life. While the aid of women is particularly desirable in this connection, the minister wishes to see it extended also to hospitals, where competent and well-instructed women can give very valuable services with regard to the management of the establishment, quality of the linen, cooking and improvements in the quarters reserved for women and children and in maternity services.

Kneading Bread by Machinery

The law subjects a baker to higher taxation if he installs a kneading machine. At the last session of the council on hygiene, the question of the taxation of bakers was taken up and a resolution was passed that bakers who used kneading machines should not be more highly taxed than those who used hand kneading. Such a tax is unjust because bakers who use machinery bring about two important improvements: In the first place, they are able to furnish their customers clean bread, free from the impurities introduced by hand kneading; and in the second place, the change is favorable to the health of the journeymen bakers, since the kneading is the most health-endangering part of the work.

The Inventor of the Steam-Engine a Doctor of Medicine

The real inventor of the steam-engine was Denis Papin, who was born in Blois in 1647. James Watt and the others who perfected the engine only developed the ideas of Papin, who was the first to recognize the elasticity of steam. The name of *marmite de Papin* (Papin's kettle) is still applied to a thick kettle furnished with a valve which is hermetically closed by a weighted lever. When the interior pressure of the steam becomes sufficient, the valve opens. Papin first applied this principle to culinary uses. Meats were quickly and cheaply cooked by this apparatus. M. Charles Nordmann, astronomer at the Observatory of Paris, has rediscovered Papin's work, published in 1682, which bears as its subtitle: "Machine Invented by M. Papin, Doctor of Medicine." Papin was a physician and took his degree at the University of Paris.

Celebration of the Twenty-Fifth Anniversary of the Pasteur Institute

The twenty-fifth anniversary of the Institut Pasteur was celebrated November 13. Speeches were made by the President of the Republic and other notables. Dr. Roux, director of the Pasteur Institute, in his speech, showed how the combined force of creative imagination and rigorous experimental

methods permitted Pasteur to found a new branch of chemistry, to solve the question of spontaneous generation, and to illumine the mystery of fermentations and of infectious diseases. Not being a physician, Pasteur hesitated long to take up the subject of infectious diseases and perhaps never would have done so if the great chemist Dumas had not influenced him to seek for a remedy for the silkworm disease which was ruining the silk industry. Pasteur, encouraged by his success with the silkworm disease, took up the study of contagious diseases of the higher animals, and from 1880 to 1885 made a series of remarkable discoveries: the attenuation of virus, vaccination against anthrax and the preventive treatment of rabies. The application to man of the antirabic treatment aroused enthusiasm. The Académie des Sciences undertook to raise a public subscription for funds to build an institute where Pasteur could pursue his researches and apply his discoveries. Such was the origin of the Institut Pasteur, which I have mentioned in a previous letter (THE JOURNAL, Oct. 4, 1913, p. 1307).

Presence of the Spirochaeta Pallida in the Blood of General Paralytics

Dr. C. Levaditi has undertaken the investigation of the question whether syphilitic infection in general paralytics is limited to the brain or if it is diffused through the blood and the various organs with accidental localization in the cerebral cortex. November 10 he read before the Académie des sciences the results of his researches in collaboration with Dr. Danulesco. The blood of a general paralytic at the third stage, syphilitic fifteen years, was inoculated into the scrotum of a rabbit; at the end of 127 days there was a bilateral serotal lesion. Ultramicroscopic examination showed many characteristic mobile spirochetes. The striking feature is the persistence of the parasite in the blood long after the beginning of the syphilis—fifteen years. Levaditi and Danulesco had had only one positive result in six trials (five paralytics and one tabetic). It seems, then, that the germ does not exist constantly in the general circulation. Perhaps it appears there only intermittently during the phases which precede or accompany the cerebral manifestations.

The Student Locum Tenens

According to the law of 1892 on practice of medicine, a medical student who has finished his course may be authorized, without having taken the examinations, to practice medicine as a locum tenens, but it is necessary to obtain an authorization from the prefect. A recent investigation has shown that many such medical students are practicing without having asked or obtained authorization from the prefects. It has also been found that practice has also been carried on by foreign students who do not fulfil the conditions required for the state diploma for doctor of medicine, which alone gives the right to practice in France, as distinguished from the doctor's diploma from the university. A circular letter has, therefore, been addressed to the prefects, requiring them to see that the law is observed.

The Glory of Pasteur

The Académie française decided yesterday that the subject of the contest in poetry in 1915 (prize, 4,000 francs, or $800) shall be "The Glory of Pasteur."

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 21, 1913.

Personal

Professor Roemer of Marburg has been called to Greifswald to conduct the hygienic institute as the successor of Geheimrat Loeffler.

The Struggle Between Krankenkasse and Physicians

Continued expressions of sympathy for their German colleagues are being published from medical societies, medical chambers, and medical faculties. A few days ago the Berlin medical faculty declared its solidarity with the German medical profession. According to newspaper reports, the governments of some of the federal states are endeavoring to influence the highest imperial authority, the office of the interior, to make a new attempt to bring about an agreement between the two parties. I regard this statement as improbable.

Transfer of Destitute Insane from Great Britain

The following agreement has been reached between the German Empire and Great Britain regarding the transfer of destitute insane. Insane who belong in one country and come under the care of public charity in the other country may be transferred to their native country on demand of the foreign country, provided that since their last entrance into the foreign country not more than fourteen months have elapsed. This period is reckoned backward from the day on which the request for transfer reaches the government of the native country. The insane are to be transferred only after the native government has indicated its acceptance and designated the place of transfer.

Coeducation

At the congress for juvenile education held at Breslau a few days ago, Professor Cohn discussed the difference of the sexes from his experience in Baden which in contrast to Prussia and other states of the empire, permits girls to attend the higher schools for boys. Cohn sent a number of questionnaires to the principals of schools with reference to their experience in coeducation, and discussed the answers which he had tabulated. Great interest attaches to the replies to the question whether erotic relations had developed between the boy and girl pupils. The answers are overwhelmingly negative. Cohn believes that this question can be treated with the greatest calmness, for the attraction of the sexes for each other will result in undesirable occurrences whether there is coeducation or not. Objectionable conduct will be quite as rare among coeducated pupils as among those not educated together; indeed it may be said that coeducation may contribute to lessen the tension between the sexes. Cohn draws the following practical conclusions from the collective investigation. Separate instruction may in itself be better in view of the different objects of interest for boys and girls, and even the vast American experience supports this view. In addition the greater readiness to fatigue in girls especially during the years of puberty, which is not noticed in boys, indicates the propriety of separate instruction. On the other hand, the objections against coeducation are not so great that it should be forbidden where it is desirable, because the small number of girl pupils does not permit the establishment of special schools for girls.

A long discussion followed the address in which a number of speakers opposed the method of coeducation. It was emphasized that these investigations were conducted on altogether too small material, and had also taken the wrong way to secure facts on which reliable scientific conclusions could be based. More extensive investigations must first be made before a complete scientific decision of this question could be reached.

Death Rate of the German Empire in 1912

The Imperial Health Office has published the following statistics bearing on the frequency of certain important causes of death from about 400 urban communities. The number born living increased by 0.1 per cent. The increase, however, is found only among illegitimate births which amounted to 3,209, while the number of legitimate children born was 2,577 less. The number of stillbirths also increased by 100, which was wholly attributable to the illegitimate children. On the other hand, the birth rate had fallen from 256.6 per 10,000 in the previous year to 251.2. As a further unsatisfactory circumstance the number of stillbirths per 10,000 children born living amounted in the previous year to 322, but in 1912 to 324. The death-rate has fallen about 8.4 per cent., or 33,178, in contrast to 1911, which was very unfavorable in this respect. The death-rate sank from 16.32 to 14.60 per 1,000 of population. Especially the number of deaths in the first year of life was markedly reduced, compared with the previous year, by about 25.2 per cent. As a result the death-rate compared with 100 born living fell from 18.9 to 14.1.

As to the causes of death, an increase was observed in deaths from whooping-cough of 736, or 22.6 per cent.; from measles and rötheln of 160, or 4.8 per cent.; from diseases of the respiratory tract of 562, or 1.1 per cent.; from murder and manslaughter of 116, or 24.5 per cent.; from suicide of 443, or 6.9 per cent.; and as a result of accident of 390, or 4.2 per cent. On the other hand, there was a reduction in the number of deaths from gastro-intestinal catarrh and diarrhea, of 30,346, or 51.8 per cent.; from typhoid of 585, or 39.3 per cent.; from diphtheria and croup of 1,123, or 16.6 per cent.; from scarlet fever of 259, or 9.4 per cent.; from puerperal fever of 83, or 5.8 per cent., and from tuberculosis of 725, or 1.7 per cent. The number of deaths from gastro-intestinal catarrh and diarrhea in children under a year old diminished more than a half, from 49,409 in the previous year to 24,129. The excess of births over deaths rose from 9.35 in 1911, to 10.51 in the year of this report.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 12, 1913.

The Meeting of German Natural Scientists and Medical Men

A few weeks ago Vienna was the meeting place of the eighty-fifth annual congress of the Deutsche Naturforscher und Aerzte, which lasted eight days. More than a thousand papers were on the official list in the thirty-four sections, and more than five thousand members formed the audience. The gathering outgrew its original aim, and it must be said that as in medical literature many superfluous articles are written, so here numerous papers should not have been read, being of insufficient importance.

The analogy between human and mouse cancer was dealt with in a paper by Dr. Frankl of Vienna. Von Hausemann had rejected all conclusions drawn from the observations of cancer in the mouse until proof of the identity of human and mouse cancer was forthcoming. Dr. Frankl's experiments show that there is no essential difference between the cells of the cancers in man or mouse. The difference, which is chiefly histologic and biologic, does not controvert the knowledge gained hitherto from experimental mouse cancer in its bearing on human cancer.

The relations between cancer and infectious diseases was the subject of a paper by Schmidt of Innsbruck. He does not believe in a living virus of cancer. He has found that the rule "cancerous ancestors, tuberculous offspring," and its reverse, "tuberculous ancestors, cancerous offspring," are very frequent. He also finds that the history of cancer patients rarely shows infectious diseases: In 44 per cent. of stomach cancers the "infection index" was 0. This peculiar hyperimmunity of cancerous patients is presented also in a refractory behavior of the organism toward vaccination with cow's lymph. The explanation might be found in the supposition that the serum after infectious diseases contains a relative protecting body against cancer.

The dosage of diphtheria antitoxin was investigated by Schick, Kassowitz and Busatti. They recommend the use of 100 units of antitoxin per kilogram of body-weight, in mild cases, and 500 units per kilogram in severe cases. Repeated injections are unnecessary.

Dr. Mall read a paper on spasmophilia in children. By variations of feeding he succeeded experimentally in producing hyperirritability of nerves in animals, which finally resulted in rachitic changes. He thus could prove the correlation of these two frequent conditions of childhood, and showed also the important rôle played herein by the parathyroid.

Taussig read a paper on endemic goiter in Austria. He showed that out of each thousand recruits presented for admission to the army twenty-nine had to be dismissed for goiter. Taussig believes that water derived from mountains is goiter-producing, by lacking an unknown substance, which controls the equilibrium of the thyroid gland. Free consumption of meat seems to be a very good remedy against this trouble; a vegetarian life seems to promote the goitrous tendency.

One of the most important papers was the report on syphilis and general paralysis by Nonne, who asserts that at present the problem is not yet solved as to who will become tabetic or paralytic and who not. It is certain that both tabes and general paralysis of the insane are true syphilitic diseases. These patients are actively diseased. But it seems that there is a special genus of *Spirochaeta pallida* which has special affinity for the nervous system and produces syphilis of the meninges and the nerves. Even in very early cases one sometimes sees affections of the brain and its covers. These persons are predisposed to fall victims to general paralysis of the insane or to tabetic conditions.

Dr. Hock emphasized the necessity of conserving the first teeth of childhood in order to keep the mouth and jaws in a condition fit to receive the permanent teeth. In some cases it is advisable to remove, after the twelfth year of age, the first permanent molar tooth, which by this time has served its object. This removal gives space for the wisdom-tooth to break through without the usual trouble. Dr. Hock believes that this simple procedure does away with a large percentage of dental caries otherwise so frequent.

The problem of mixing human races with each other was discussed by Fischer, who said that although little experimental work is existing in this field, nevertheless it could be shown that mendelian laws were obeyed. Racial features were just as well inherited as parental general features, and they were often split, but not lost in the grandchildren. In a similar paper Abel showed that as yet there is no single absolute proof known for a real morphologic atavism in animals. The law may be formulated that an organ which in the course of ontology (during development of the genus) has become rudimentary never regains its original strength. Even if later on its presence should be required, it is replaced by an analogous organ.

The metabolism of iron in the body of the new-born was studied by Drs. Langstein and Edelstein (Berlin). They found that within the first week of life the infant loses iron by means of the bowels and that not until later is the metal retained and stored up from the food.

The importance of water in the metabolism of infants was shown by Dr. Lederer. He found that the human (and animal) organism is subjected to a gradual loss of water normally. Children with disturbances of the alimentary harmony show increased contents of water in the organs; also those with the exudative diathesis with their tendency to frequent catarrhs. The disturbance of water metabolism is thus one of the chief sources of disease in childhood (adenoid ring). This investigation proves the correctness of the ancient supposition of "constitution," which now has been placed on a safe chemical-physical base.

Interesting papers were read also at the meeting of the psychologists; one by Kafka of Munich, especially, aroused much discussion. This investigator studied the psychology of animals, and demands that careful attention be paid to this important part of biology, as it offers valuable clues to the understanding of human psychology as well as for general knowledge of the development of conscience. Analogy with human psychology could not be disregarded except for unscientific reasons.

The fight against malaria in Austria was described by Dr. von Celebrini of Trieste. He advised the regular intake of quinin daily during the malaria season, at least 5 grains per dose for adults. Children must be treated too, otherwise the whole campaign is useless. Mechanical protection from *Anopheles* is worthless and costly; best is the destruction of insects, practiced according to their biologic conditions in the affected districts.

Other papers were read on the use of india-rubber for covering warships; the future of our earth; the theories of the tides; the refutation of Newton's law of gravitation; modern methods of stereoscopic photography; paleontology and human development; the color-sense of animals; the tectonic structure of the Alps; the chemical substance used by Hannibal to dissolve the rocks of the Alps, etc. After the congress was over, a large number of visitors remained in Vienna and availed themselves of the opportunity of visiting the medical and scientific institutes of this city.

Marriages

FRANCIS ELSWORTH HYPES, M.D., Dunreith, Ind., to Miss Lynn Wiltshire of New Paris, O., at Dayton, O., November 24.

WILLIAM CAMPBELL, M.D., Corona, N. Y., to Miss Minnie Louise Murrell of Rockaway Beach, L. I., N. Y., November 26.

JOHN GODFREY THOMPSON, M.D., to Miss Frances Lucile Young, both of Helena, Mont., November 26.

JOSEPH EDWARD MILLER, M.D., Wayland, Mo., to Miss Lela Fern Harris of Sullivan, Ill., November 18.

WILLIAM LEAKE MANN, JR., M.D., U.S.N., to Miss Ann Fegan of Dallas, Tex., November 25.

JOHN HOOE IDEN, M.D., U.S.N., to Miss Marianna D. Brazill at Portsmouth, R. I., November 22.

RALPH CRISSMAN BROWN, M.D., to Miss Marion Phoebe Mills, both of Chicago, December 2.

ORVAN CHARLES ADKINS, M.D., to Miss Ruth Emeline Miller, both of Elnora, Ind., November 21.

FREDERICK V. BURNHAM, M.D., Detroit, Mich., to Miss Nellie Berg of Boston, November 26.

JAMES W. THOMAS, M.D., to Miss Rose Murdoch, both of Nchawka, Neb., November 23.

E. J. DONOHUE, M.D., to Miss Elizabeth Mueller, both of Antigo, Wis., November 26.

LEO KESSEL, M.D., to Miss Evelyn Goldsmith, both of New York City, November 24.

Deaths

John Guerrant Trevilian, M.D. Medical College of Virginia, Richmond, 1861; a Fellow of the American Medical Association; surgeon in the Confederate service throughout the Civil War and at its close brigade surgeon and chief of field hospitals; chief surgeon of the Confederate Home and medical department of the city almshouse at Richmond; died at his home in that city, November 24, aged 73. The medical profession of Richmond met with the Richmond Academy of Medicine and Surgery, November 25, to take suitable action regarding the death of Dr. Trevilian.

Thomas S. Crofford, M.D. Hospital College of Medicine, Louisville, 1876; a member of the Tennessee State Medical Association, and American Association of Obstetricians and Gynecologists; professor of gynecology in Memphis Hospital Medical College; gynecologist to St. Joseph's Hospital and obstetrician to the Memphis City Hospital; proprietor of Crofford's Sanitarium, Memphis; prominent as a surgeon of Memphis for many years; for the last year a resident of California; died at his home in Los Angeles, November 24, from pneumonia, aged 54.

Henry Matt. Winans, M.D. Medical College of Ohio, Cincinnati, 1880; a Fellow of the American Medical Association; a member of the State Board of Education; one of the founders and president of the People's Trust Company, Muncie, Ind.; prominent not only as a practitioner, but as a financier and philanthropist; died in a hospital in Muncie, November 23, from malignant disease of the throat, aged 58. At a special meeting of the Delaware County Medical Society, November 24, resolutions of regret and sympathy were unanimously adopted.

John Howe Clark, M.D. Medical Director and Rear Admiral, U. S. Navy (retired); Harvard Medical School, 1862; who since retirement had lived in Amherst, N. H.; a surgeon of the navy since 1861 and in 1893 appointed medical director and president of the Navy Examining Board; died at his home in Amherst, December 1, from cerebral hemorrhage, aged 76.

Oliver D. Simmons, M.D. Maryland Medical College, Baltimore, 1906; Atlantic Medical College, Baltimore, 1909; a member of the Medical and Chirurgical Faculty of Maryland; president of the Calvert County Board of School Commissioners and twice a member of the House of Delegates; died at his home near Bowens, November 25, aged 45.

Robert Alvin Walker, M.D. University of Wooster, Cleveland, 1879; of West Monterey, Pa.; a Fellow of the American Medical Association and once president of the Clarion County, Pa., Medical Society; a member of the General Assembly in 1905 and 1906; died suddenly while making a professional call in Monterey, November 26, aged 59.

William A. B. Treadway, M.D. University of Michigan, Ann Arbor, 1883; a Fellow of the American Medical Association; formerly a member of the medical staff of the Rhode Island State Hospital and the Givens Sanitarium, Stamford, Conn.; died in the Stamford Hospital, November 18, from pneumonia, aged 54.

William Wright Williams, M.D. Rush Medical College, 1871; Bellevue Hospital Medical College, 1874; said to have been the oldest practitioner of Mattoon, Ill.; died in the University Hospital, Chicago, November 20, eighteen days after an operation for the removal of the prostate gland, aged 66.

Frederic Matthew Helbig, M.D. Bellevue Hospital Medical College, 1890; a Fellow of the American Medical Association and a member of the New York State Board of Pharmacy; died at his home in New York City, November 26, from peritonitis, aged 47.

John Decker Frazer, M.D. University College of Medicine, Richmond, 1902; a Fellow of the American Medical Association, and a practitioner of Danton, Va.; aged 37; was dragged to death by a runaway horse in Orange County, Va., November 26.

Marshall P. Austin, M.D. University of Michigan Homeopathic College, Ann Arbor, 1881; formerly of Minneapolis, Minn., but for about ten years a resident of Medina, Mexico, died in that city, November 20, from pneumonia, aged 64.

Gideon Mitchell Duncan, M.D. McGill University, Montreal, 1871; once president of the Canadian Medical Association; died at his home in Bathurst, N. B., October 5, aged 71.

Gaston Graham Bell, M.D. University College of Medicine, Richmond, Va., 1900; died at his home in Oriental, N. C., November 22.

Gertrude Harper Hammond, M.D. New York Medical College and Hospital for Women, 1867; for more than fifty years a practitioner of Rockland County, N. Y.; died at her home in Spring Valley, November 19, aged 82.

Edward Bowen Finney, M.D. Jefferson Medical College, 1861; of Onancock, Va.; died in St. Joseph's Hospital, Baltimore, November 24, from peritonitis following an operation for appendicitis, aged 77.

George Edmond Baril, M.D. Victoria University, Coburg, Ont.; for twelve years president of the Educational Commission of Hochelaga; died suddenly at his home in Montreal, September 20, aged 54.

George J. Parker, M.D. Western Reserve University, Cleveland, 1847; for many years a practitioner of Lexington, Mich.; died at the home of his daughter in Port Huron, Mich., November 23, aged 90.

Edgar Grove Yowell, M.D. Ohio Medical University, Columbus, 1901; of Newark, O.; died at the home of his mother near Hebron, O., November 4, from pulmonary tuberculosis, aged 39.

Harvey W. Cory, M.D. Hahnemann Medical College, Chicago, 1890; proprietor of a sanatorium in Marion, Ind.; died at his home in that city, November 23, from malarial fever, aged 47.

Miles Dennison Goodyer, M.D. University of Michigan, Ann Arbor, 1868; a member of the Medical Society of the State of New York; died at his home in Groton, November 25, aged 69.

Albert Curtiss Brown, M.D. Bellevue Hospital Medical College, 1873; for fifteen years a practitioner of Chicago; died at his home in North Yakima, Wash., November 6, aged 64.

Louis Prosper La Fleche (license, Maine, years of practice, 1893); a Fellow of the American Medical Association; died at his home in Caribou, Me., September 19, aged 45.

Daniel Webster Bashore, M.D. University of Pennsylvania, Philadelphia, 1865; died at his home in West Fairview, Pa., November 18, from cerebral hemorrhage, aged 78.

Titus E. Yerkes, M.D. Rush Medical College, 1864; a Fellow of the American Medical Association; died at his home in Upper Alton, Ill., November 27, aged 77.

Ash D. Bennett, M.D. Pennsylvania Medical College, Gettysburg, 1860; of Mahaffey, Pa.; died at his old home in Clearfield, Pa., about November 29, aged 77.

George Walke Wallace, M.D. University of Virginia, Charlottesville, 1867; a Confederate veteran; died at his home in Norfolk, Va., November 9, aged 68.

John Windell, M.D. University of Pennsylvania, Philadelphia, 1854; died at his home in Hamorton, Pa., August 5, from cerebral hemorrhage, aged 87.

Harry S. Nolte, M.D. Baltimore University, 1898; a member of the Michigan State Medical Society; died at his home in Reed City, about November 13.

Andrew A. J. Burkett (license, Louisiana); for many years a practitioner of Lafayette Parish; died November 20, from heart disease, aged 64.

Albert E. Staudacher (license, Indiana, 1899); a practitioner since 1865; died at his home in Terre Haute, Ind.; September 16, aged 79.

John Hinton Lowry, M.D. Rush Medical College, 1877; formerly of Sterling, Ill.; died at his home in Reedley, Cal., about November 5.

William Jones (license, Iowa, years of practice, 1886); died at his home in Volga, October 19, from carcinoma of the stomach, aged 70.

E. W. Davidson, M.D. Kentucky School of Medicine, Louisville, 1899, died at his home in Tampa, Fla., November 18, aged 36.

Joseph A. Hatzfield, M.D. Hahnemann Medical College, Philadelphia, 1881; died at his home in Pueblo, Colo., November 14, aged 67.

Charles H. Lee, M.D. Hahnemann Medical College, Philadelphia, 1864; died at his home in Newcastle, Pa., November 12, aged 73.

Calvin McMillin, M.D. Western Reserve University, Cleveland, 1867; died at his home in Cleveland, November 15, aged 91.

Corwin James Steele, M.D. Rush Medical College, 1888; died at his home in Hustler, Wis., November 13, aged 54.

Augustine Catherine Haub, M.D. Boston University, 1893; died at her home in Boston, November 14, aged 33.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TEXAS GUINAN

Another Fraudulent Obesity "Cure"

Quackery is disreputable and vicious, because, as a rule, it not only defrauds but also trifles with health and life itself. Occasionally there are varieties of quackery that attack only the purse. The Texas Guinan obesity "cure" is one of these.

Texas Guinan is an actress. Her connection with the obesity cure that bears her name is explained briefly in the following news item that appeared in the papers early in August of this year:

> "DENVER, Colo., Aug. 4.—Marjorie Hamilton has been deposed as the light in the lives of fat women who seek to reduce, and a new queen reigns in her stead, the Denver stage favorite, Texas Guinan, according to a telegram received from that young woman to-day.
>
> "The message says she has been paid $50,000 by Walter C. Cunningham, Marjorie Hamilton's husband, and head of the fat reduction bureau, and H. D. Turner of Los Angeles, for the method she says she used in reducing herself from 204 pounds to 134."

Most of THE JOURNAL'S readers will remember its exposure of "Marjorie Hamilton's Obesity Cure" and the individual who operated it, Walter C. Cunningham. The federal authorities followed up this exposure, and Cunningham and his wife, Marjorie, were indicted by the federal grand jury and later arrested.

A RETROSPECT

To recapitulate briefly: In 1906 Cunningham is said to have served a term of eight months in jail in Minneapolis for fraudulently listing fees when he was "president and manager" of a real-estate business of that city, conducted under various names. After completing his jail sentence, Cunningham, it is said, went to Rochester, N. Y., where he became associated with the Clark-Adkin-Neal syndicate, which has exploited various mail-order medical fakes. At this time he is said to have married Evelyn Burlingame and soon thereafter to have gone to Buffalo, where he started a mail-order business, selling "beauty treatments." The business was conducted in his wife's name. In 1909 Cunningham transferred his operations to Chicago, where, after a brief period of employment with the Currier Publishing Company, he started a mail-order bust-developer and wrinkle-eradicator concern under the name of his wife, Evelyn Cunningham. In 1910 Cunningham sold his interest in this concern and incorporated another one along the same lines—the Della Carson Company—later disposing of this also. In the meantime he was divorced from Evelyn, and on Sept. 19, 1911, married Marjorie Hamilton—the "Calendar Girl"—who, on Sept. 6, 1911, had obtained a divorce from her previous husband, William Kerting. Kerting, according to the newspapers, sued Cunningham for $25,000 for alienating his wife's affections. At the time of his marriage to Marjorie Hamilton, Cunningham had left Chicago and had opened a new establishment in Denver. Here he exploited the "Marjorie Hamilton Obesity Cure," the "Princess Tokio Beauty Company" and the "Cunningham Mail-Order School." THE JOURNAL'S exposure of these three frauds made them unprofitable, and the next the public heard of Cunningham's activities was that given in the newspaper item reproduced above.

As late as Aug. 5, 1913, the newspapers reported that Marjorie Hamilton was about to get a divorce from Cunningham, charging that this gentleman "did everything mean, even to punching her face." Marjorie, in an interview published in a Chicago newspaper at that time, expressed herself thus:

> "Mr. Cunningham has another scheme now for money making. I'd advise the people who are dealing with him to look out. He has advertised his successes very widely, but he has kept his failures intensely quiet. He is like a balloon that would blow up in a moment if a pin should stick it."

We have, then, historically considered, the following enterprises of Mr. Cunningham:

North American Land Co.: fraudulent real estate.

Evelyn Burlingame: mail-order beauty treatment.

Evelyn Cunningham: mail-order bust developer and wrinkle eradicator.

Della Carson: mail-order bust developer, wrinkle eradicator and fat reducer.

Marjorie Hamilton: mail-order fat reducer.

Princess Tokio: mail-order beauty treatment.

Texas Guinan: mail-order fat reducer.

TEXAS TO THE RESCUE

Texas Guinan comes to the obese public—especially the female portion of it—with this alluring challenge:

> "I have at last, finally and forever, conquered the mystery of harmlessly reducing flesh! I challenge the world to produce any person I cannot promptly take down in weight, and guarantee to make slender quickly."

TEXAS GUINAN'S

World-Famed Treatment for Corpulency

PRICE $20.00

DIRECTIONS: Shake contents thoroughly each time before using. Pour a liberal amount of the liquid into the palm of your hand and apply to the entire body or any of the fatty parts you desire to reduce. By rubbing the fat parts with this liquid, you will see that it quickly dries, leaving a powder upon the surface. Use a liberal amount of the preparation for 15 or 20 minutes at a time upon arising in the morning and just before retiring, and as often during the day as desired. I found results were more rapid by jumping into a tub of hot water (sufficiently hot to open the pores) upon arising and before retiring, as heat opens the skin pores, thus permitting the preparation to more readily enter the pores of the skin and dissolve the fat globules. And I found it especially beneficial to throw a tablespoonful of ordinary washing soda into the bath of water. However, hot baths are unnecessary unless you are especially eager for quicker results. The main point is to enable the preparation to enter the skin pores, and plainly any effort on your part to assist in opening them will be beneficial. Cleanliness demands warm bathing anyway, so why not accustom yourself to bathing before using this preparation? To reduce double chin open the pores by the application of hot towels to the chin before using preparation.

FOR EXTERNAL USE ONLY

Some patrons state that they have had still more rapid and remarkable results by dissolving two cups full of epsom salts in the hot bath twice daily instead of washing soda.

FOOT NOTE: Anyone with common sense knows that in the use of any treatment for corpulency, a more rapid reduction is possible if the users are willing to restrict their diet somewhat by omitting white bread, potatoes, sweets and starchy foods, and although diet is no part of my treatment, I offer this information merely by way of suggestion to those who are especially anxious for rapid reduction.

Not sold in drug stores, and is only obtainable at the

American Headquarters of Texas Guinan, Inc.

Lanco Building, Los Angeles, California

This preparation is not intended for the cure, mitigation or prevention of disease

Fig. 1.—Photographic reproduction of the directions on the label attached to Texas Guinan's thirty cents' worth of alcohol and alum. The stuff is purchased on the understanding that no massage, dieting and exercise are necessary!

Like most obesity cures of the so-called drugless variety, the Texas Guinan humbug is "entirely different" from anything else! To quote: "It is not like the Marjorie Hamilton treatment—as absolutely different as day from night." Neither, according to Texas, is the treatment anything like the Dr. Bradford treatment, the Dr. Turner treatment, the Susanna Cocroft treatment, the Dr. Kellogg treatment, the Dr. Spillinger treatment, the Burns Belt or Hattie Beal treatment, nor like "Fat Foe," "Fat Off," "Berledets" or the Annette Kellerman treatment.

Texas says she has to laugh when she realizes how much money she squandered "trying the various fat-reducing treatments so heavily advertised by charlatans of the American Medical Association." In fact, she advises her fat sisters, "Tell the quack A. M. A. doctors and specialists to go hang."

THE COMPLETE LETTER WRITER OF QUACKERY

It is an education in quackery to receive a complete set of the advertising matter, follow-up letters, booklets etc., sent out by Cunningham, or shall we say Texas? The booklet which those who answer the advertisements receive, is in itself a gem of impudence and mendacity. It contains various pictures of Texas Guinan in different varieties of stage dress and undress—fat, lean and medium. In it the lady tells how she was about to lose her position because she was getting too fat. "In tights I was a sight at 204 pounds," she says, and publishes a picture to prove it. Mr. Shubert, the theatrical gentleman, we are told, patted her on the shoulder "and led me quietly to the door leading out of the private entrance of his office." Thus cast into outer darkness, she determined to remove her surplus fat, and finally "out of the chaos came an inspiration."

She followed out the "inspiration" and took off 17½ pounds in ten days—we have her word for it! Joy returned! "I was found dancing before the mirror, singing as a full-throated field lark sings at dawn." Day by day, she says, she saw her "limbs that had been so big and ugly and cumbersome regain their lost slimness and beautiful lines;" she saw her "big

City and County Bank

COMMERCIAL SAVINGS

THE BANK THAT TREATS YOU RIGHT

PAID UP CAPITAL $200.000.00

Los Angeles, Cal.
Sept. 2, 1913.

2nd and SPRING STREETS

Texas Guinan,
Los Angeles, Cal.

As a large and esteemed depositor of our bank, I wish to state to whom it may concern, that we appreciate your account, and are pleased to inform the public that we feel your company is thoroughly reliable and doing a very large business.

It certainly must be gratifying to you to realize that after your own wonderful reduction you are able to benefit humanity by offering them the treatment which to understand is going like wildfire throughout the entire civilized world.

Your fair honorable dealings with the public cannot but result in the everlasting gratitude of all those who have the privilege of dealing with you.

You have permission to use this letter in order that the public may know in what esteem we hold your company.

Yours truly,
Cashier.

JTB/O

Fig. 2.—Some banks are willing agents of quackery. The City and County Bank of Los Angeles describes as "fair, honorable dealing" a business which sells, under fraudulent claims, thirty-cents' worth of simple drugs for twenty dollars.

bust . . . slowly subside back to its original shape"; her abdomen "lost its swollen and unnatural appearance"; in fact, "the days passed like happy dreams." Naturally, she went back to Mr. Shubert, who, with a due appreciation of poetic justice, at once "dictated a contract that made my eyes stick out."

A REQUEST FROM A LEAN MAN

Being desirous of finding out all that could be found out about Mr. Cunningham's latest venture, the member of THE JOURNAL staff in charge of this department wrote the following letter to Texas Guinan:

"Dear Madam: Please send me your new book that is free and oblige."

The name signed was one of several assumed in writing for quack literature; no prefix, "Miss" or "Mrs.," was put before the signature. This point is mentioned because, as will be seen later, this short, non-committal, uninforming, unemotional, strictly business-like note from a lean man was to bring a series of heart-to-heart letters from Texas Guinan. "My dear friend" wrote Texas—but let her speak for herself:

"I am sincerely glad to get personally acquainted with you through your reply to my advertisement. I am positive it is going to prove a friendship that will result in a world of boundless happiness for you, of a deep, sincere unforgetting gratitude on your part for the great, glorious, precious new liberty that will be yours after you have been forever released from the cruel prison of Fat that has so long held you captive; when you will arise in the morning and greet each beautiful new-born day with a glad song upon your lips instead of a sigh; when you will glow from head to foot with a thrilling exultation of becoming slender day by day, actually seeing with your own eyes the superfluous flesh melt away; and instead of the flabby ungainly lines, the new and bewildering grace of youth will steal as if by magic over your entire form."

The "bewildering grace of youth" was an appealing promise—to a lean man of 40—and the enthusiasm of Texas was contagious.

"Listen, dear friend: I am so wildly enthusiastic over my world-thrilling, perfect and positive fat reducer that I am madly impatient for every fat human being in the universe to get the wonderful benefits of it right away!"

"Madly impatient" is good. Why this mad impatience, may be explained by the following paragraph that occurs a little further along in the letter:

"I am a woman, and in this thing heart and soul, out of the great joy it has brought me both to be slender and to see all others slender, so if you will fill out the enclosed guarantee order blank and send it at once, with $20.00, there will be sent you immediately under plain cover, the complete guaranteed Texas Guinan positive fat reducing treatment, of which you have never dreamed, and which the world has never before seen advertised in America."

For a paltry $20 Texas was "madly impatient" to send her unfailing treatment! And how simple and harmless it was to prove!

"With this absolutely unfailing fat reducer, let me firmly impress upon you that you have no internal medicine to take, no nauseous pills, tablets, or powders, no exercise of any kind—not one, no tortuous massage, no masks or apparatus, no rollers, none of the old, moth-eaten, worn-out, silly, senseless, daily self-denial, or third degree methods. I guarantee all this, and on the day you receive the treatment you will yourself be happily aware that you have at last found the only real and rational treatment known to the world's science."

And, after dilating on the evils and tortures of fatness:

"After the dark hours, dear friend, comes the dawn. This dawn is now for YOU!"

Then came the peroration and the letter closed:

"Hoping to receive your $20.00 order as soon as possible, I am, Your Deeply Sincere and Sympathetic Friend, Texas Guinan."

THE SECOND LETTER COMES

Four days after the first letter was received, Letter No. 2 arrived, in which Texas says:

"I am puzzled! More puzzled than disappointed at failing to get a warmly enthusiastic response from you before now."

She need not have been puzzled, as she failed to allow sufficient time to elapse between the first and second letters for an answer to her first letter to reach Los Angeles from Chicago, even had it been written at the earliest possible moment. Possibly Miss Guinan expected a telegram.

"Well knowing your inmost yearning, burning desire to be slender, and feeling sure you fully realize my positive treatment will make you so, I even expected your Rush Reply by Special Delivery."

Evidently the trouble lay in the letter sent from THE JOURNAL office. It was too confiding, too personal, for Texas says:

"Truly, from the way you answered my advertisement, I felt positive you were Intensely in Earnest in your great longing to be rid of your fat."

Apparently, too, the once obese actress had read into the letter that was sent her, something that was certainly never intended, for we read:

"You know there's sometimes a Wireless System of Sympathetic Understanding between human beings. Your letter, strangely enough, filled me with the almost uncontrollable desire to Rush this

Positive Reducer to you at Once; to even take it to you myself; to get on the train and go to you with it and remain with you for several days. . . ."

Evidently on thinking over the matter more carefully, Texas Guinan controlled her "almost uncontrollable desire," and instead of coming to Chicago in person, sent the letter—which was probably just as well. Yet there surely is no doubt that the lady is much in earnest.

"When I electrified my friends and admirers and all the theatrical world by my quick transformation from fat-girl to thin-girl: When I stunned to speechless Surprise and Satisfaction that Great Manager Mr. Shubert (whose former criticism of my over-weight had stung me to the soul)—when I Dazzled him with my fresh, new, fairy slenderness of figure, my lithe-limbed, small-waisted winsomeness from head to heal [Spelling original with Texas—ED.]—why, dear friend, the Happy Scene it made when I presented myself before him, a New-Born, Superbly Sculptured Being and—Presto, I Stepped Across the Thrilling Threshold of 'Stardom.' Ah, my friend, no change, no scene, can e'er efface, my mind's impression of that time and place."

All of this preliminary to great "offer"; to the "one chance to save $10 on the Texas Guinan Positive Fat Reducer." For a mere $10 it was possible for the more or less cadaverous male who received this letter to get a preparation that, "from the very moment you receive it, There Is No Power on Earth That Can Keep You from Losing Flesh Rapidly . . ." The change that he would undergo would be remarkable:

"Your chin—throat—arms—abdomen—hips—thighs and lower limbs are immediately destined for almost unbelievable alteration; your enchanting, new and graceful willowness more noticeable every blessed day . . ."

LETTER NUMBER THREE

And with this wonderful promise, Texas closes her letter, from "Yours for New Youth and a New Deal with Destiny." With man-like perversity, even this letter remained unanswered, and as a result, Letter No. 3 came in due time, and in this Miss Guinan became even more personal:

"Pardon me, dear, you may think me awfully conceited, but I AM a bit proud of what great critics have said in the press about me and my newly made-over form. You, too would be—for we are only women after all—and Beauty and Admiration are a part of our very lives, aren't they, dear!"

Almost uncanny are the powers of Texas:

"But I can see you in my mind's eye today, Dear Friend, as you really are."

Here we are afraid Texas is mistaken. If she really could see her "dear friend" as he is, she would have instructed her corps of typists to remove his name from the mailing-list and charge up to profit and loss the stationery and postage already expended. Still it was hard to refrain from sending the $10, when for this small sum such a product would be sent.

"BEHOLD! I believe I have right in my hand a treatment designed to make you Beautifully Sinuous, Fascinatingly Slender and Adorable! I believe I have right in my hand the power to give you back the Glory of Youth's Lithsome Grace, a pliant, peerless, reed-like form."

"Reedlike form" seems particularly good as applied to the recipient of this letter; the only criticism offered is that it should have applied to the present instead of the future. Nevertheless and notwithstanding the fact that Texas closed her letter "with sincere, Sisterly Solicitude," the $10 was not sent.

THEN THE FOURTH LETTER

One might have imagined that after three such pleading epistles, Miss Guinan would feel that she was indeed casting her pearls before swine. But no, Letter No. 4 came strictly on time, with the explanation:

"As long as you are still among the Piteous Prisoners of Fat, fat-girded, fat-manacled, fat menaced, I cannot find it in my heart to forget you! Really, truly, sincerely, dear, I cannot for the life of me, blot out of my mind, the awful unrest, the dull, desperate unhappiness you must feel!"

As has been surmised, the letter that brought this flood of correspondence from Miss Guinan was not sufficiently impersonal.

"Your answer to my advertisement was, in itself, full of pathos to me, for I understood it through and through!"

Unlike the lady in Mr. Kipling's poem, Texas, it seems, did understand, and having understood, exhibits an "all-conquering sympathy for you that makes me forget the sordid money part of it all." She has a "great surprise" that will make it Doubly Easy and Even Profitable for you to grow slender with lightening [More original spelling.—ED.] speed." This is it:

"Here, my dear, I am making you a most Sisterly Proposition! I could not be more liberal if I were your own flesh and blood!"

The "sisterly proposition" is an offer of the Texas Guinan $20 "obesity cure" for the "small price of $5." All she asks is that you send in "the names and addresses of five fat men or women," which Miss Guinan considers "worth $15." This, the fourth letter, begins to exhibit a spirit of doubtfulness, as though its writer was slowly becoming convinced that the person to whom it was addressed did not think much of the Texas Guinan "obesity cure." To dispel any growing skepticism, we are told that should we stop a moment and reason we must inevitably conclude that every statement Texas Guinan has made regarding her cure "must be true, because my reputation is at stake. I am traveling the country starring in 'The Passing Show of 1912,' backed by Mr. Shubert, America's greatest theatrical manager." And yet we receive signed letters from Texas Guinan from Los Angeles!

"I would expect to be mobbed at the stage door as I finished my performance, if I deceived the fat burdened folks of America by selling them anything but a high class proven fat reducer."

$10.00 VALUABLE COUPON $10.00
GOOD FOR $10.00 YOU GAIN TEN DOLLARS
GOOD FOR $10.00 YOU SAVE TEN DOLLARS
You Can Secure My Safe and Sane
$20.00 FAT REDUCTION TREATMENT at $10.00
Special 30-Day Offer to Introduce My Marvelous Treatment
DO NOT DESTROY WORTH 10 DOLLARS. POSITIVELY VOID AFTER 30 DAYS.
TEXAS GUINAN Inc. Loose Bldg. Los Angeles, Calif

Fig. 3.—This "coupon" gives its recipient the privilege of buying thirty cents' worth of alum and alcohol for only ten dollars!

And whatever you do, do not confuse Texas Guinan's only original fat reducer with anything else you may have heard or dreamed of.

"All the wafers, pills, powders, miracle dope, rubber jackets, rollers, weakening baths, and willy-nilly what nots, are a hilarious joke to you the moment you begin this treatment and behold with grateful, astonished eyes the marvelous, quick effects."

LETTER NUMBER FIVE

In spite of all this, and much more; in spite of the fact that Texas inscribes herself "Your fond and faithful friend"; in spite of the promise of the "exuberant happiness" that would follow "the magic of this world-bewildering treatment"; in spite of everything, Letter No. 4 fell on deaf ears. Thus it became necessary for Texas to send Letter No. 5. This epistle lacked the fiery enthusiasm of the previous ones, whether because it was signed "Texas Guinan, per H. D. T., Manager," or because in this letter the price of the treatment is reduced to the ridiculously small sum of $3, it is hard to say. "This offer," you are told, "expires twenty days after you receive this letter." Moreover, "this is the last offer that will be made you; after that date the original price will be $20." To get it at this low price it is necessary to "send the names and addresses of ten fat men or women"; further, "it is understood that you will keep sacredly confidential the special $3 offer made you."

THE CURE IS PURCHASED

Finally the money was sent and in due time a package came by express containing "Texas Guinan's World-Famed Treatment for Corpulency." This $20 treatment consisted of a quart bottle filled with a muddy liquid, which on standing

separated into a pinkish sediment and an almost colorless liquid. The stuff was analyzed in the Association's laboratory, and as a result of the examination, the chemists' report might be summarized as follows:

To make a mixture having essentially the same composition as the "Texas Guinan World-Famed Treatment for Corpulency," take a quart-size fruit jar and put into it:

Powdered Alum	1 pound
Alcohol	10 ounces
Water, sufficient to make	1 quart

The approximate cost of these materials is 30 cents; selling price, from $20 to $3, according to the ease with which one parts with his money. The chemists' report in detail follows:

LABORATORY REPORT

"One original, sealed bottle (capacity about 1 quart, $20 size) of the "Texas Guinan World-Famed Treatment for Corpulency" (put up by the Texas Guinan Co., Los Angeles, Cal.) was received at the Association's laboratory and subjected to examination.

Fig. 4.—Photographic reproductions (greatly reduced) of advertisements of some of Cunningham's fraudulent mail-order schemes. In the upper row: The "Della Carson Wrinkle-Eradicator" on the left and "Texas Guinan Obesity Cure" on the right, with the "Princess Tokio Wrinkle-Eradicator" between. In the lower row "Cunningham's Mail-Order School" on the left, the "Marjorie Hamilton Obesity Cure" on the right, and "Evelyn Cunningham Bust-Developer" between.

"The bottle contained a heavy sediment (of light pink color) and an approximately equal volume of almost colorless supernatant liquid. On addition of water the sediment readily dissolved. The sample was highly scented with rose water. Qualitatively, the mixture gave tests for aluminum, potassium, sodium (traces of magnesium), iodid, sulphate, alcohol and water.

"The following quantitative data were obtained: 100 c.c. of the well-mixed preparation weighed 112 gm., equivalent to a specific gravity of 1.12; and 100 c.c. of the mixture contained about 60 c.c. of liquid and 51 gm. of solids.

"Some of the mixture was evaporated to dryness and the water of hydration removed by heating in an oven at 200 C. The aluminum and sulphate content of this dry powder was determined and found to agree closely with the theory for anhydrous aluminum potassium sulphate (alum), $AlK(SO_4)_2$. From the above examination the preparation appears to be composed essentially as follows:

"Alum	50.2 gm.
"Sodium Iodid	00.16 gm.
"Alcohol (absolute)	29.65 gm.
"Water (by difference) to make	100 c.c."

NO ALCOHOL LABEL

In spite of the quantity of alcohol present in the mixture, there was no declaration of the presence of this substance, such as is required by the federal Food and Drugs Act.

The label containing the directions for the use of the stuff we reproduce photographically, omitting only a picture of Texas Guinan in tights, and a "special notice" to the effect that the preparation must positively be shaken before using.

Apparently, the world-famed treatment does not always have the same composition. A specimen of it was sent to us by a New York physician. No alcohol or alum was found in this, but instead a solution of gum, probably tragacanth. It seemed to be of the "vanishing lotion" type. Like the other specimen it had a minute quantity of iodid in it. Moreover, the label on the bottle forwarded to us from New York differed slightly from that on the bottle purchased by THE JOURNAL. The label on the non-alcoholic, gummy "cure" bore this statement:

"By rubbing the fat parts with this liquid you will see that it rubs slowly into the pores; continue rubbing until it disappears and until the skin is apparently dry."

The label of the specimen obtained direct was modified thus:

"By rubbing the fat parts with this liquid you will see that it quickly dries, leaving a powder upon the surface."

AND THEN LETTER NUMBER SIX

One might imagine that after they have parted with $20 or $10 or $5 or $3, as the case may be, Texas would be willing to leave her victims in peace. But, no; a few days after the obesity cure has been received, Letter No. 6 arrives. It begins:

"This is a letter of grave Warning—heed it, and you should have cause for eternal rejoicing—Disregard it, and you may bitterly Reproach Yourself For All Time To Come!"

The point is:

"The quantity of reducer sent you must by this time be getting scarce, and I write to warn you about Ordering A New Supply Before It Is Exhausted."

Miss Guinan is really quite concerned about the matter:

"Not having heard from you with an order for a second supply, I have become a little worried, my dear, that you might make the terrible mistake of allowing the bottle to get empty without taking the precaution of having another one on hand. . . . You are now as one who has climbed three-fourths of the way up the Pinnacle of Happiness—do not falter in your steps, do not hesitate, do not lag, do not doubt or fear."

While the "regular price is $20 a bottle to all the world," Texas is magnanimous again and will let her "dear" have repeat orders "for $4 a bottle, or two bottles for $7, or three bottles for $10." On no account must the "treatment" be interrupted; if continued "you will be magnificently reduced to normal proportions," provided—and this is a gem—"you use the treatment until the cause of your fat is overcome."

Then follows a number of testimonials—addresses omitted—leading up to this whirlwind climax:

"The Golden Goal, The Sweet Reward Is In Sight; It Is All Up To You! It Is For You, And You Alone, To Choose! Success Or Failure? Which, My Dear? Yours with Affectionate Anxiety, Texas Guinan."

SUMMARY

Those, then, who send $20—or less—for Texas Guinan's "cure" are to rub themselves with a watery-alcoholic solution of alum fifteen or twenty minutes at a time on rising, just before retiring and "as often during the day as desired." It is also suggested that a hot tub be taken twice a day and that white bread, potatoes, sweets and starchy food be omitted from the diet. That by taking hot baths repeatedly, rubbing one self twenty minutes at a stretch at frequent intervals and dieting strictly, one might be able to reduce weight, is evidently true. That Texas Guinan's mixture of alum, alcohol and water has anything whatever to do with the reduction is, just as evidently, not true. In short, "Texas Guinan's World-Famed Cure for Corpulency" is essentially a fraud; as much of a fraud as the "Marjorie Hamilton Obesity Cure" that Cunningham exploited from Denver, or the bust developer and wrinkle eradicator that he sold in Chicago.

At the risk of appearing hypercritical, we reproduce two paragraphs from the order-blank used in purchasing the Texas Guinan "cure."

"I also buy it with the understanding that it is new and different from any other treatment in the world that you ever heard of being advertised, and that there are no exercises of any kind with it, no dieting of any description, and that I may eat all kinds of foods I desire while taking it.

"And I buy it with the still further understanding that worthless massage is unnecessary, and that in no part of your treatment is there any physical culture of any description, no internal bathing or enemas, no worthless, harmful creams to rub upon the skin or body, that there are no Turkish baths, no apparatus of any kind, no bandages, no belts, no garments, no body-wrecking sweat baths, no medicine, pills or internal stuff to swallow, no special foods and no obesity biscuits—nothing to take internally."

Possibly a mixture of alum, alcohol and water is "new and different from any other treatment in the world," for obesity. It cannot be said, though, that there are "no exercises of any kind," when the purchasers are explicitly instructed to rub themselves for fifteen or twenty minutes at a stretch. The statement that there is "no dieting of any description" and that the person using the nostrum "may eat all kinds of food," is also untrue, in the light of what appears on the label, which suggests a strict diet. A careful reading of the second paragraph given above will show that while many of the statements are technically true, they are essentially false.

It is a sorry commentary on our laws that a man whose business has been essentially one of fraud and deceit for years past, can continue to swindle the public with apparent impunity. The federal authorities took action in the case of Marjorie Hamilton, but as yet have not pushed the thing to completion. THE JOURNAL'S thorough-going exposure of this particular swindle—and the publicity which the papers of the country gave THE JOURNAL article—killed it, financially. All that Cunningham needed to do, however, was to transfer his offices to another state and start up under another name. His stock in trade are impudence and mendacity; his clientele, the gullible. The federal machinery of necessity moves slowly, and it should be unnecessary to invoke federal aid in prosecuting a fraud of this kind. When Professor Samuels, the Wichita quack, attempted to operate his fraud-factory in Detroit, the local authorities took the thing in hand and made Michigan too hot for him. The local authorities of Los Angeles can do the same thing for Cunningham.

Correspondence

The Better Control of Ophthalmia Neonatorum

To the Editor:—In THE JOURNAL, Aug. 30, 1913, p. 634, Dr. A. Jacobi, the retiring president, states that "in 108 cases of ophthalmia neonatorum that are reported by various eye clinics, sixty-two patients were attended by physicians, forty-three by midwives, and three by neighbors . . . It so happened that all the cases of total blindness occurred in the practice of physicians." Yet we find that the punitive measures of the proposed bill are directed against the midwife most of all. Truly, there is plenty of material for the lawyer of sporting instinct, keen for employment in any possible claim against the opulent physician and the dividend-paying hospital association, but in the main it is the midwife that is to be regulated.

About six years ago I vainly tried to interest the health authorities of Cleveland in a consistent policy of saving the eyes of the newly-born. Instead, there followed an antimidwife crusade, resulting in jailing a baker's dozen of them—and nothing else. The mountains labored and brought forth a most ridiculous mouse.

Dr. Jacobi well insists on the training of midwives, sweeping aside the childish fears expressed in some quarters that the midwife might eventually compete with the physician. There is not a man in practice but knows that our immigrant citizens and too many others, employed at small wages, have not the means to employ a physician, let alone a nurse subsequent to accouchement; nor do they seem to conform to the American style of restricted families. It is this class of our citizenship which necessarily depends on the midwife. Our place is to bring about a system of training the midwife, not to jail her.

Whether or not the employment of a general practitioner as an accoucheur would eliminate ophthalmia neonatorum is a question that remains unanswered. My observation and experience do not incline me to an affirmative opinion. Abroad, especially in the rural districts, and in the city slums, where according to the tabulated returns of vital statistics, more than 75 per cent. of all confinements are assisted by midwives, not a single eye is lost from the disease. Here enters, too, a matter of professional difficulty—ethics, I had almost said. Take the busy physician, with a long calling-list. Attending, among others, a patient with scarlet fever, diphtheria or erysipelas, does he invariably take the time, granting the inclination, to bathe and to change his attire completely before calling on his next patient in what may perhaps be a confinement case? Is it not possible that contagion is carried in this way? It is well that we do not know! What we do know is that many a busy physician, impatient at the delays of natural childbirth, resorts to artificial aids; and again we should account ourselves fortunate in failing to know what damage accrues to the patient because of our "advanced" knowledge and dexterity.

Every reader knows that with all her antiquated ways Europe has but a tithe of women suffering from the diverse female troubles to which America is heir, and that our daily diet of laparotomies and exsected ovaries, by selfstyled "surgeons," is a rarity on the other side. This condition is almost entirely due to the employment of the midwife, educated and trained in her special work, supervised by competent practitioners, and, above all, grounded in the elementary instruction that on no account may she pass beyond the limits of her sphere, being specifically directed to call the physician at the first symptom of any abnormal condition. This course, while inuring to the immediate rectification of any trouble, automatically settles the fear of possible "competition."

What a splendid corps of midwives might be produced in America under proper conditions! Our women, intelligent, quick to learn and to observe, pliable to training and conscientious in their work, would make splendid material, while the prominence and responsibilities attaching to the work would raise it in the public opinion as one most desirable, yielding, at the same time, sufficient remuneration without imposing great burdens on the poorer among our citizenship. Such a step, it may well be believed, would settle the matter of lying-in homes and hospitals.

Finally, inasmuch as most of the victims of ophthalmia neonatorum come from the slums, and in view of the fact that the disease is the result of the ignorance of parents or prospective parents, I have long been convinced that appropriate instruction by way of public lectures and in other ways will almost wholly eliminate this crime against humanity.

There remains a word to be said about Section 4, Article 3, in the proposed bill, prepared under the auspices of the Council on Health and Public Instruction of the American Medical Association (THE JOURNAL, June 21, 1913, p. 2004), providing for the gratuitous distribution by the state board of health of a scientific prophylactic to physicians. There is no physician who would grudge the few pennies for investment in a bit of silver nitrate, while, on the other hand, the state should not be put to a considerable expense for purchases of medicine, packing and mailing. But that is an insignificant matter in comparison with the importance of the bill itself.

JAMES STOTTER, M.D., Cleveland.

Convenient Rule for Dividing Doses

To the Editor:—I wish to submit a method which will save the doctor and nurse a good deal of time in administering drugs. If the physician wishes to divide a dose, such as a tablet containing a fraction of a certain weight (grain or gram) so as to give a smaller fraction, the following rule may prove convenient: Dissolve the larger dose in as many volumes of water (minims or cubic centimeters) as equal the

denominator of the smaller fraction and give of this solution a number of volumes (minims or cubic centimeters) equal to the denominator of the larger fraction. Thus, if we have ⅛-grain tablets of morphin sulphate and wish to give 1/64 grain, we measure 64 minims of water, in which we dissolve the ⅛-grain tablet. Then by taking 8 minims for injection we give the required 1/64 grain.

MICHAEL S. AARONSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MARSDEN'S PASTE IN EPITHELIOMA

To the Editor:—1. Please give the formula of Marsden's Paste.

2. How often usually should it be applied to an epithelioma of ordinary size, one, for instance, as large as a small chestnut? How should it be applied, and how often, or do conditions of the neoplasm determine these points?

3. Why could I not use it on an epithelioma of the ala of the left nostril of an old man? This growth is about the size already mentioned and is getting larger. It is causing no discomfort. There are no metastases and the growth appears to be absolutely local. The patient cannot avail himself of opportunities which are not here, as radium, etc., and prefers to avoid the knife if possible.

FRANK P. NORMAN, M.D., Greenville, Ga.

ANSWER.—1. Marsden's paste consists of powdered acacia 1 part and arsenious acid 1 or 2 parts by weight, which are mixed at the time they are to be used with enough water to make a paste of the consistency of a firm ointment. If deep destruction of the tissue is necessary it is better to use the stronger mixture. If the lesion is relatively shallow in comparison with its area, the mixture of equal parts of arsenious acid and acacia is sufficient. In ulcerating lesions the stronger paste is preferable, because the eschar is formed more quickly and limits the absorption of arsenic.

2. The paste is applied in a thick layer over the area to be destroyed, and should extend beyond the apparent border of diseased tissue. It should be left in position until a white eschar is produced; this requires from eight to twenty-four hours. After the eschar forms, it should be dressed surgically. The slough will separate in from five to seven days, and if the treatment is properly carried out there remains a healthy granulating wound which heals in about a week and leaves a relatively small scar. After separation of the slough and healing of the wound, if any areas of epithelioma remain the treatment can be repeated as at first. Nodules of epithelioma that are covered by epidermis must be denuded by the curet or caustic potash or some similar agent before the application of an arsenic paste, for arsenic does not destroy horny epidermis.

3. If it is going to be used on an exuberant tumor on the ala nasi, such as described, the excess of epitheliomatous tissue should first be curetted away and the paste applied as above described to the base. It is probable that the layer of healthy tissue under the epithelioma is thin, if the tumor has not involved the entire thickness of the ala nasi, so that the ala nasi will probably be destroyed in the procedure.

In proper cases epitheliomas can be destroyed radically by such a paste, but it is not a method of preference in most cases and should be undertaken with caution.

DELAFIELD'S HEMATOXYLIN—EHRLICH'S ACID HEMATOXYLIN

To the Editor:—Please give methods of preparation of Delafield's hematoxylin and Ehrlich's acid hematoxylin.

W. H. ENDERS, M.D., Jackson, Mich.

ANSWER.—The methods of preparation are as follows:

Delafield's Hematoxylin: To 400 c.c. of saturated solution of ammonia-alum (that is, about 1:11 of water) add 4 gm. of crystallized hematoxylin dissolved in 25 c.c. of strong alcohol. Leave it exposed to the light and air in an unstoppered bottle for three or four days. Filter, and add 100 c.c. of glycerin and 100 c.c. of methyl alcohol (CH_4O). Allow the solution to stand (uncorked) until the color is sufficiently dark, then filter.

Ehrlich's Acid Hematoxylin: Water 100 c.c., absolute alcohol 100, glycerin 100, glacial acetic acid 10, hematoxylin 2 gm., alum in excess. Let the mixture ripen in the light (with occasional admission of air) until it acquires a dark red color. It will then keep, with constant staining power, for years, if kept in a well-stoppered bottle. It is very appropriate for staining in bulk, as overstaining does not occur.

LIABILITY FOR MEDICAL AND SURGICAL CARE OF PAUPERS IN ILLINOIS

To the Editor:—Can you give me information in regard to the Illinois laws on the medical and surgical care of paupers and near paupers? What are the duties of the township supervisors (overseers) in providing county help for sick paupers in the rural districts of Illinois where no regular county physician is appointed?

T. A. J., Illinois.

ANSWER.—Chapter 107 of the Illinois Revised Statutes, Paragraph 1732, provides that relatives of any pauper are first liable for his care, which would include necessary medical and surgical treatment. By relatives are meant children, parents, grandparents, cousins, uncles, aunts, etc., the nearer relatives being liable first. In case a township supervisory or overseer employed a physician to attend the pauper, the physician might present his bill to the overseer who would notify the court, and the relatives, if able, would be compelled to pay for such services. In case they were unable to pay, the physician's compensation would come from the township or county poor-funds.

PRIVILEGED COMMUNICATIONS IN ILLINOIS

To the Editor:—I keep my account on one side of a sheet of paper and the case report on the other. I have seen a statement to the effect that accounts kept in this manner cannot be used in court in an attempt to collect, because of the fact that the record of the case would be considered a privileged communication. What is the status of this matter? P. E. B., Illinois.

ANSWER.—There is no statute in Illinois covering the question of privileged communication between physician and patient. By the common law, the rule of privileged communications applies only between lawyer and client and such rule must be created by statute in all other relations. (See Wigmore on Evidence, Paragraph 2381, *et seq.*) In states having such a statute covering the relation of physician and patient, it might apply to an account of the character above defined, but it would depend on the interpretation of the court.

EARLY DEMONSTRATION OF WASSERMANN REACTION

To the Editor:—1. How soon after the initial lesion of syphilis is a Wassermann demonstrable?

2. Is it true that a Wassermann is negative until after the secondary stage? J. B. SPALDING, M.D., Kenosha, Wis.

ANSWER.—1. The reaction has been observed five days after the appearance of the initial lesion and can be elicited in a majority of cases after the lapse of fifteen days.

2. No.

ELLIOT'S OPERATION FOR GLAUCOMA

To the Editor:—Please describe Elliot's operation for glaucoma.

J. T. LITTLE, M.D., Pittsburgh, Pa.

ANSWER.—Lieut.-Col. R. H. Elliot, of the (British) Indian Medical Service, Madras, a recent visitor to America, has revived (since 1909) and much improved a half-forgotten method of trephining the sclerocornea for the relief of increased tension in the various forms of glaucoma. Fergus reported the operation a little earlier than Elliot, but he has not had the wide experience of the Anglo-Indian, who has probably evolved a better procedure. Dr. Elliot has written a practical little work on the subject; in it he describes his operation which, in brief, is as follows: The operation may be performed under the local influence of cocain and epinephrin dropped into the sac.

The patient looks down, and a large triangular flap of conjunctiva is dissected up from above the cornea, the attached base of the triangle lying at the sclerocorneal margin. Experience has shown the importance of dissecting this flap right up to the limbal attachment of the conjunctiva. The flap is turned down on the cornea. The spot selected for the trephining should be in the cornea as much as possible, and should be prepared by using the scissor points freely, either cutting or scraping or both, right down to the scleral coat. It is important that no conjunctival tissue be left; otherwise

it will catch in the trephine and tend to draw the flap into the latter as it is working. The operator should never pull on the flap, but simply steady the globe by pressing on the cornea through the down-turned flap. This is sufficient to keep the eye at rest and in the proper position. The trephine is used with quick, light movements, and care is taken that its first application suffices to bite into the sclera, before it is raised to see the progress made. Once a clean ring is thus started, it is easy to replace the trephine in it. As soon as the anterior chamber is tapped, aqueous fluid wells up alongside the trephine; even apart from this, there is a curious sucking sensation which tells one the trephine is through. Moreover, the patient often helps, by a slight movement due to the pain (seldom severe) which attends the completion of the section. The conjunctival flap is replaced *in situ* to see whether or not the iris is in position. If it is, and if there is no bulging of its base into the wound, the eye is at once closed. It sometimes happens that the iris bulges into the section the moment the disk is cut through; if so, it is snipped with scissors to let the aqueous fluid escape, and it then often goes back of itself. If it does not, then an iridectomy is performed. As a rule, a very small and peripheral section of the membrane suffices; more rarely it is necessary to make the iridectomy complete. It is well to instil physostigmin (eserin) drops into the eye after operation, if for any reason it is feared that a prolapse may take place. As a rule, no drops whatever are used immediately after the operation.

Elliot has somewhat modified his early operation by continuing the elevation of the tissues into the clear cornea—splitting the latter with a dull paracentesis needle or similar instrument—and he places emphasis on entering the trephine so that the corneal section shall be first made and a little hinge of tissue be formed toward the sclera. This hinge and the iris periphery may often be cut through by one snip of the scissors.

CONTAGIOUSNESS OF SMALL-POX

To the Editor:—Please answer the following questions:

1. At what stage of the disease is small-pox most contagious, or is it contagious at all stages of the disease?
2. How contagious is the exfoliated material?
3. Is the expired breath contagious through all of the stages of the disease?

L. P. BARBOUR, M.D., Rocky Ford, Colo.

ANSWER.—1. Small-pox is contagious from the earliest active stage to the end of convalescence, and possibly even during the stage of incubation.

2. The exfoliated matter is very contagious and very tenacious of its infectivity. Its vitality is retained after the patient's death, and the room occupied by a patient, the bedding and articles of furniture all serve to convey the disease unless thoroughly disinfected.

3. Probably.

EFFECT OF CUTTING THE VAS DEFERENS

To the Editor:—Please state whether or not cutting the vas deferens affects sexual desire.

J. A. BOYER, M.D., Carmi, Ill.

ANSWER.—The effects of cutting both vasa have been extensively observed in men as well as in animals. Observers are agreed that no perceptible change in sexual desire or power results therefrom. This conclusion accords with the familiar clinical observation that occlusion of both ducts through bilateral gonorrheal epididymitis does not in the least impair the subject's sexual desire or power. He does not even suspect any genital irregularity until search for the cause of the wife's failure to conceive reveals the absence of spermatozoa from the semen.

SUBSCRIPTIONS FOR FOREIGN JOURNALS

To the Editor:—Please inform me if there is a place in America where one can subscribe for the *Wiener klinische Wochenschrift*, and also the price of the annual subscription.

J. CURTIS LYTER, M.D., Moberly, Mo.

ANSWER.—The prices for subscriptions to all the exchanges listed in our Current Medical Literature Department were given in the Index Number of THE JOURNAL, June 28, 1913, p. 2097, and will be republished with the Index, December 27 next. The *Wiener klinische Wochenschrift* is there given as costing 24 marks a year. This is about $6, plus postage.

Advertisements of persons who make a specialty of taking subscriptions for foreign journals appear in nearly every issue of THE JOURNAL.

COLLOIDAL PALLADIUM

To the Editor:—A physician here told me that he saw in THE JOURNAL a short time ago an article on the increasing of oxidation and the absorption of adipose tissue by the use of a Colloidal Palladium (he was not certain about the name of the metal used). Can you give me the number of THE JOURNAL containing the article described?

LYDIA ALLEN DEVILBISS, M.D., Fort Wayne, Ind.

ANSWER.—Colloidal Palladium (Leptynol) was introduced by M. Kauffmann (München. med. Wchnschr., 1913, lx, 525, 1260), who states that it is related to the platinum group. The author performed experiments on himself and used the substance in other cases, he claims, with success. No other reports concerning this substance are available. It is apparently one of the many thousand proprietaries produced abroad in the past year and put on the market after meager experimental work.

LITERATURE ON FIELD HOSPITALS

To the Editor:—Please refer me to literature giving plans for field and camp hospitals, and describing how they are conducted.

J. A. ROSENBERGER, M.D., Big Creek, Cal.

ANSWER.—Following are references to recent articles on field hospitals:

Baketel, H. S.: Field Hospitals in Peace and War, *Mil. Surgeon*, November, 1913.
Reno, W. W.: Proposed Method of Pitching and Striking a Field Hospital rapidly, *Mil. Surgeon*, April, 1913.
Boaz, J. J.: Hospitals in the Field, *Mil. Surgeon*, November, 1910.
Lovering, P. A.: The Hospital Camp at Norfolk, Va., *U. S. Nav. Bull.*, October, 1909.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

HEALTH DIRECTION IN THE PUBLIC SCHOOLS

C. P. McCord, Medical Inspector of Schools at Albany, N. Y., in a paper read before the Fourth International Congress on School Hygiene at Buffalo, says that we are living in the renaissance of science as applied to society. Interest in the growing child is manifested in laws concerning child-labor, infant-welfare work, school medical inspection and school nurses. Compulsory education has placed approximately twenty million children under a daily routine in the schools which is often far from being conducive to good health and normal development. Modern medical inspection in the schools dates back nineteen years, but its importance in our educational system is constantly increasing.

McCord believes that school medical inspection constitutes a specialty as much as laryngology or otology, but so far only two American medical colleges offer courses on social pediatrics in connection with instruction in the diseases of children of school age. In view of the great extension of school medical inspection there is a great need of well-trained physicians along this line. McCord believes that full-time men should be employed, preferably those having some experience as executives in school work, together with a first-class medical training with a knowledge of the elements of the specialties. They should have a fair outlook on pedagogic and sociologic problems, and should be paid adequate salaries. To afford the best results there should be a sufficient number of nurses to insure a daily visit to every school, which would mean one nurse to about fifteen hundred children. Adequate records should be kept. A good working reference library along medical, psychologic and sociologic lines should be provided.

McCord says that the medical officer should in no way usurp the privileges of the family physician. Much of the opposition to school inspection arises from the profession itself, and this is a greater drawback to effective work than is the opposition of parents to what they often believe to be an infringement on their rights as parents. It is the duty of the medical director always to refer cases to the family physician, who in necessary instances will refer them to a proper specialist. The opposition of the profession to a medical director in the schools arises

from the fear that he will favor particular physicians or that he will treat or suggest treatment. The proper understanding of the aims of a well-equipped medical director will dispel this idea. The full-time man removes the danger that the inspector may "work" his position to increase his private practice.

When medical inspection is part of the educational system the question of the relation to the local board of health arises. Most cordial relations should, of course, exist, but it is chiefly the acute contagious diseases among schoolchildren which will fall under the authority of the board of health. In Albany, where McCord is director, the plan is that all such diseases are reported by telephone to the board of health, and in turn each morning the office of the medical inspector receives the report of all such cases known to the board of health.

McCord says that in view of the recent researches on measles and scarlet fever, the question arises as to whether or not the period of exclusion for these diseases might not be shortened materially. In the matter of diphtheria he believes that there should be a more rapid enforcement of the new rule requiring for release two negative cultures on two successive days. McCord's suggestion for lessening the spread of diphtheria would be to make cultures of every sore throat, and in instances in which a case of diphtheria develops to culture at once the throat of every child in the class and exclude the carriers.

The five chief highways to health in the public schools are medical inspection, school hygiene, personal hygiene, physical training and welfare work; and in the department of school inspection in Albany, as organized by McCord under the statute of New York making medical inspection of schools compulsory, the foundations have been laid for effectively carrying out these five requirements. The system was initiated in March, 1913. A laboratory has been established with facilities for complete medicopsychologic examination of backward children, and special classes have been provided for such children. An important feature of medical inspection is the work of the nurses. In Albany the city has been divided into districts with a nurse in every district. Every school receives a visit every other day. Acute or contagious diseases are first dealt with and the other children are thus protected. After these cases are attended to, routine examinations for physical defects are made and parents are notified, with the request that the child in question be taken to the family physician.

As to the practical results in Albany, since April, 1913, forty-eight operations have been performed by Albany physicians for the correction of physical defects. Over 50 dental treatments have been secured, 150 children have been provided with eye-glasses and hundreds of children with contagious and parasitic diseases have been excluded until cured. The inspections have shown defective vision in 20 per cent., enlarged tonsils in from 6 to 12 per cent., nasal obstructions in from 12 to 20 per cent, decayed teeth in from 50 to 80 per cent., nervous disorders in from 5 to 20 per cent., orthopedic defects in 20 per cent., skin diseases in from 1 to 15 per cent., mental defects in from 1 to 2 per cent., and defective hearing in from 2 to 5 per cent. One great object of the medical inspection is to place the responsibility with the parent for obtaining advice from the family physician. An interesting feature of the Albany plan is the blank for recording the medicopsychologic laboratory examination, which includes the history, examination, and sociologic, psychologic and educational data.

THE PUBLIC HEALTH SITUATION IN ATLANTA

Atlanta, Ga., is a progressive and rapidly growing city of 175,000 inhabitants. The public-spirited citizens composing the Chamber of Commerce of Atlanta, recognizing that the health of a city is its greatest asset and one of the requisites for attracting people and industries, made provisions for a survey of the public-health situation. This survey was conducted by the Department of Surveys and Exhibits of the Russell Sage Foundation, which has recently made its report. This report in many of its features, in which health conditions in Atlanta are criticized, would undoubtedly apply to most of our cities. It is therefore not to be considered purely as a criticism or condemnation of conditions in Atlanta, but rather as a valuable guide to the improvement of health conditions generally. That, of course, was the end sought by the citizens in obtaining this survey.

One of the first features of the report is that of preventable diseases, from which it is shown that 15.6 per cent. of the whole mortality (about 3,000) of the city in 1910 was due to eight well-known infectious diseases which are generally admitted to be preventable. Adding four other diseases, diarrhea, meningitis, pneumonia and puerperal fever, which are probably preventable under ideal conditions, the total deaths (1,042) from preventable diseases was 35.5 per cent. of the total mortality.

Inasmuch as the prevention of such diseases is one of the chief functions of the health organization, the report discusses the present organization of the health board of Atlanta. The board of health consists of ten members. This board directs the work of two separate organizations, the division of sanitary inspection, which is occupied with the collection and disposal of garbage, cleaning of streets and the engineering aspects of health work, and the department proper, which is in charge of a health officer hired and directed by the board. The board maintains a laboratory, a detention hospital for contagious diseases and a tuberculosis sanatorium, and is engaged in the registration of vital diseases, the control of communicable diseases, milk and dairy inspection, meat and market inspection, mosquito reduction, plumbing inspection and medical relief to the poor. The appropriation for carrying on this work is $80,000 yearly, which is less than 23 cents per inhabitant per year, which the report regards as considerably below the minimum requirement for a modern effective department. This is the great criticism which applies to practically all municipal health departments at present.

The system of reporting vital statistics is criticized not because it is inadequate, but because of lax enforcement. It is said that births must be reported promptly if any baby-saving work is to be attempted, and that deaths should be reported not only promptly but with accurate and adequate information. Examination of 349 death certificates filed during May, 1913, showed the statement of cause to be satisfactory in only 181. The remaining 168, or 48 per cent., were found to be incorrect, incomplete or indefinite, which, as the report says, is not only in violation of the law, but is a testimonial of ignorance and carelessness which is a serious reproach to the local medical profession. This comment again would apply to almost any other city.

Criticism is made that measles, whooping-cough, erysipelas, chicken-pox, typhus fever and pellagra, which were formerly reportable, were dropped in 1911 from the list of reportable diseases at the suggestion of the Fulton County Medical Society. Diphtheria, scarlet fever, small-pox and cerebrospinal meningitis are reported satisfactorily, but typhoid fever and tuberculosis are said to be reported in only about half of the cases. Only a few of the typhoid patients are visited and no steps are taken to follow up tuberculosis. Diphtheria patients are released ten days after the disappearance of the clinical symptoms, and attention is called to the fact that it is a better practice to release only after two successive negative cultures. Laboratory diagnosis in tuberculosis and diphtheria is offered by the department, but the work is hampered by the lack of funds, and it is said that the city neglects a definite opportunity to purchase public health.

Milk and dairy inspection is likewise provided for in a comprehensive ordinance covering inspection of dairy farms, depots, etc., and prescribing milk standards and proper temperature and bacteriologic standards; but only two dairy inspectors, one bacteriologist and an assistant are provided, which is an entirely inadequate force for the work to be done.

Meat and market inspection is commented on in the report, although no provisions are made for the chemical detection of adulterations of food.

Mosquito reduction is fairly well provided for, but the health officer believes that a larger sum of money could be profitably spent.

The criticism is made that nearly one-sixth of the department's appropriation is spent on plumbing inspection, which is a matter now considered to have slight hygienic significance,

and it is said to be unfortunate that twice as much is spent on this department as for the control of communicable diseases.

In referring to the defects in the present organization of the board, it is said that the board's system of health-department control is a relic of the days in which health work was largely a matter of nuisance abatement and emergency steps in the face of epidemics of small-pox, etc. Public-health work has become technical and it is now considered wiser to hire a competent specialist in public-health work. The problems of disease and statistics are beyond the field of experience of the members of the board.

It is also pointed out that the sanitary division carries on certain work which properly belongs to the health department, such as the supervision of privies and dry closets, which is work of distinct hygienic importance, as is that of the inspection of private wells, a service now entirely omitted.

Among the "neglected opportunities" considered in the report is that of lessening the death-rate among infants under 1 year of age, of which there were 521 in Atlanta in 1910. In other cities this problem has been attacked by requiring proper reporting of births and the visiting of cases by health department nurses. Midwives are examined and regulated, and infant-welfare stations are established in congested districts which supply pure milk and cheap ice. Atlanta has not taken any of the above-mentioned steps, but a number of private organizations have been carrying on this work on a limited scale.

The restriction of tuberculosis, it is stated, offers another of the largest opoprtunities for health improvement. In Atlanta, many of the elements of a well-rounded program for the improvement of conditions with regard to tuberculosis are present, but they need to be brought together and augmented. The health department receives reports of cases (though only partially complete) and maintains a sanatorium, and the anti-tuberculosis society maintains a clinic, investigates cases and furnishes certain nursing facilities. The cooperation between these two organizations is not close enough.

One of the chief opportunities for betterment recommended in the report is that of dispensary service for the benefit of the poor, among whom much sickness occurs, a greater portion of which is of the communicable and preventable variety. These patients, if not treated, serve as reservoirs, or incubators of infection, and purely as a matter of economy, if nothing else, should be found and cured. The most effective way in which this can be done, it is stated, is through a free health department dispensary which becomes a recognized center not only for medical treatment but also for the dissemination of all kinds of sanitary knowledge.

A good housing law is recommended as being especially desirable for Atlanta with its large colored population and congested living conditions, which make the spread of infectious diseases easy. It would produce a great improvement also in the houses of the better classes, eliminating dark rooms and insuring proper sanitary arrangements, etc.

The report says of the negro, who constitutes a larger proportion of the population than in many Northern cities, that he may be regarded as a hygienic liability, but at the same time represents a hygienic opportunity because he represents an opportunity to reduce greatly the community's stock of infectious diseases. At present in Atlanta practically no attention is paid to infectious diseases among the negroes, and no isolation hospitals are open to them.

The recommendations and conclusions of the report embody the correction of the conditions criticized above and as far as posible a reorganization of the health department, centering greater authority and responsibility in a competent health officer, and above all, providing adequate appropriations for carrying out the well-known problems of city hygiene and sanitation.

As of course is to be expected, Atlanta presents special problems, which the survey has revealed, but, as we have stated, in the main the criticisms of almost every condition mentioned will apply to practically every city in the land. The fact that a survey has been demanded by the citizens of Atlanta is the best assurance that progress is bound to be made along these lines.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 13. Chairman, Dr. W. H. Sanders, Montgomery.

ARIZONA: Phoenix, January 3. Sec., Dr. John Wix Thomas, 200 National Bank of Arizona Bldg., Phoenix.

COLORADO: State Capitol, Denver, January 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

ILLINOIS: The Coliseum Annex, Wabash Ave. and 16th St., Chicago, Jan. 14-16. Acting Sec., Amos Sawyer, Springfield.

INDIANA: Room 56 State House, Indianapolis, Jan. 13-15. Sec., Dr. Wm. T. Gott, 56 State House, Indianapolis.

IOWA: The Capitol Bldg., Des Moines, January 6-8. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Armory, Louisville, Dec. 11-13. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Homeo., St. Luke's Hospital, Baltimore, Dec. 15-16. Sec., Dr. O. N. Duval, 1817 N. Fulton Ave., Baltimore.

MINNESOTA: State University, Minneapolis, January 6-9. Sec., Dr. Thos. S. McDavitt, 814 Lowry Bldg., St. Paul.

NEW HAMPSHIRE: State House, Concord, January 6-7. Regent, Mr. H. C. Morrison, State House, Concord.

NEW MEXICO: Santa Fe, Jan. 12. Sec., Dr. W. E. Kaser, East Las Vegas.

NORTH DAKOTA: Grand Forks, January 6. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 13. Sec., Dr. John W. Duke, Guthrie, Okla.

OREGON: Portland, January 6-8. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

SOUTH DAKOTA: Capitol Bldg., Pierre, Jan. 13. Sec., Dr. Park B. Jenkins, Waubay.

VERMONT: Montpelier, Jan. 13-15. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 16-19. Sec., Dr. Herbert Old, Norfolk.

WASHINGTON: Spokane, January 6-12. Sec., Dr. F. P. Witter, Traders' Block, Spokane.

WISCONSIN: Madison, Jan. 13. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Louisiana October Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Oct. 27-29, 1913. The number of subjects examined in was 10, the total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 27, of whom 16 passed and 11 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1913)	85.2
University of Alabama	(1913)	82.9
Chicago College of Medicine and Surgery	(1913)	83.7
Illinois Medical College	(1910)	79.6
Tulane University, (1897) 77.1; (1910) 84; (1913) 78.7; 87.6; 89.7; 90.1; 90.8.		82.4
Jefferson Medical College, Philadelphia	(1913)	82.6
Memphis Hospital Medical College	(1913)	79.8
University of Tennessee	(1913)	77.4
Fort Worth School of Medicine	(1911)	86.4

FAILED

Atlanta College of Physicians and Surgeons	(1913)	68.6
Flint Medical College	(1910)	61.1
Meharry Medical College	(1912)	68
Memphis Hospital Medical College, (1901) 60.7; (1911) 65.4; (1912) 65.7; 73; (1913) 51.5.		
University of Tennessee, (1913) 59.9; 71.6; 72.5.		

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Illinois	(1912)	Illinois
University of Louisville	(1912)	Kentucky
Baltimore Medical College	(1912)	Maryland
University of Michigan	(1912)	Michigan

One candidate, a graduate of the Hahnemann Medical College, Chicago, in 1906, was licensed through reciprocity with Illinois by the Homeopathic State Board of Medical Examiners of Louisiana, November 3, 1913.

The following questions were asked:

PATHOLOGY

1. (a) What is an infarct? (b) What is an anemic infarct? (c) What is a hemorrhagic infarct? 2. Describe the process of healing wounds by first intention. 3. Name the different forms of pus-producing cocci, and state which of these are the most virulent. 4. (a) What is suppuration? (b) What is leukocytosis? 5. What changes occur in joints following gonorrheal metastasis? 6. Describe the pathology of acute osteomyelitis. 7. What are the pathological changes found in the small intestine in typhoid fever? 8. Describe the gross pathology of acute lobar pneumonia. 9. Describe the

pathology of pyonephrosis. 10. Describe the pathology of arteriosclerosis.

ANATOMY

1. Name boundaries, anterior and posterior of axilla. 2. Describe the thoracic duct. 3. Give origin and structures supplied by the glossopharyngeal nerve. 4. Describe the Y or iliofemoral ligament. 5. What is connective tissue? Where is it found? 6. Name ligaments of ankle joint. 7. Describe the pleura. 8. Describe the arteries and veins passing to and from the kidney. 9. Give component parts of spermatic cord. 10. Describe the relations of the peritoneum to the bladder.

PHYSIOLOGY

1. What is invertin, and what part does it play in digestion? 2. What is an internal secretion; name the more important organs concerned in the process of internal secretion. 3. What are the principal waste products of metabolism and through what channels are they excreted? 4. What are the average proportions of the principal constituents of normal human milk? 5. What kind of nerve impulses are carried through efferent and afferent nerve fibers? 6. What is the result of injury to, or removal of, the semicircular canals? 7. Name the nerves concerned in the constriction and in the dilatation of the pupil of the eye. 8. State briefly what is understood by diapedesis and phagocytosis. 9. What factors are concerned in the second sound of the heart and where is this sound best heard? 10. Relative to external respiration, state briefly what is understood by (a) tital air, (b) complemental air, (c) reserve air, (d) residual air.

CHEMISTRY

1. What are the principal allotropic forms of carbon? 2. How does carbon dioxide act as a poison? 3. What is an unorganized or soluble ferment? 4. Name the soluble ferments of the body. 5. What are the tests for starch? 6. What caution should be observed in testing urine for sugar? 7. What are ptomaines, and name some of the best known ptomaines? 8. What is the principal salt of silver used in medicine, and what are the properties of this salt? 9. What are fats, and name the principal animal fats. 10. (a) Is elementary arsenic poisonous, (b) how does arsenic prove poisonous, (c) which is the most common poisonous compound of arsenic?

THERAPEUTICS

1. (a) What are mydriatics? (b) Name them. 2. Name the principal drugs used for the reduction of blood-pressure. 3. (a) What are cardiac stimulants. (b) Name some of the best known drugs used for this purpose. 4. Describe the physiologic action of the diuretics. 5. How would you treat a case of acute opium poisoning? 6. What are the antidotes for arsenic? 7. Describe the treatment of valvular disease of the heart with failing compensation. 8. How do substances act by counter-irritation? Name some of the best known counter-irritants. 9. Describe the action of antidiphtheric serum in a case of diphtheria. 10. What are the physiologic actions of the salts of cinchona?

PHYSICAL DIAGNOSIS

1. What are the types of normal respiration, and what conditions would cause alterations of same. 2. What conditions influence the production and variation of pitch? 3. Define dyspnea, and state the types and causes of same. 4. Summarize the points of differentiation between pleuritic friction sounds and bronchitis. 5. Describe the natural heart sounds, and the causes of each. 6. Describe the characteristics and significance of the various kinds of arterial pulse. 7. What are the physical signs of pericarditis with effusion. 8. Differentiate cardiac hypertrophy and cardiac dilatation. 9. Give the physical signs of combined aortic and mitral insufficiency. 10. Describe the physical signs of ascites and those of cystic disease of the ovary.

SURGERY

1. Give treatment of a compound fracture of humerus. 2. Give symptoms and treatment of tubercular hip joint. 3. What operative measures may be indicated in exophthalmic goiter? 4. Differentiate between enlarged inguinal glands, hernia and hydrocele. 5. Give diagnosis and treatment of epithelioma of lower lip. 6. Give symptoms of acute osteomyelitis. 7. Describe the operation of posterior gastro-enterostomy. For what condition is it most frequently performed. 8. Give symptoms, diagnosis and treatment of tubercular kidney. 9. Give signs, symptoms and treatment of depressed fracture of skull. 10. Describe Colles' fracture. How is it generally produced and how should it be treated.

OBSTETRICS

1. (a) What are the causes of prolonged first stage of labor; (b) dangers; (c) management? 2. Discuss in general the principal drugs used to hasten labor. 3. What are the prerequisites, indications and contraindications for the use of forceps. 4. What are the causes of hemorrhage before and after delivery? 5. (a) What conditions necessitate version; (b) forceps delivery; (c) Cesarean section? 6. Describe a cesarean section. 7. Vaginal examination shows the saggital suture occupying the right oblique diameter; the small fontanelle is felt opposite the right sacro-iliac synchondrosis, the large fontanelle being directed toward the left and front. (a) What is the position of the child; (b) how may the case end; (c) treat the case if nature's efforts are unsuccessful. 8. What changes occur in the fetal circulation at birth. 9. Give the etiology and treatment of subinvolution of the uterus. 10. What is the cause and treatment of frequent urination in pregnant women?

GYNECOLOGY

1. Name the different malignant neoplasms of the ovary. 2. (a) What symptoms and signs would lead you to suspect carcinoma of the body of the uterus? (b) Why is carcinoma of the body of the uterus less malignant than carcinoma of the cervix? 3. Name the muscles of the female perineum which may be torn during labor. 4. Describe the pathology of cystocele and of rectocele. 5. Name the causes of dysmenorrhea. 6. Differentiate between incomplete abortion and extra-uterine pregnancy. 7. Name the different varieties of uterine fibroids. 8. What general and local conditions may cause amenorrhea? 9. Describe the operative treatment for prolapse of the uterus. 10. What symptoms may follow retroversion of the uterus?

HYGIENE

1. How does the expired air from persons differ in its composition from ordinary air? 2. Name at least six bacterial diseases in which the respiratory tract is the portal of entrance for the microorganism. 3. What are the advantages of pasteurized milk? 4. What is the specific gravity of normal cows' milk, and to what is it due? 5. What is understood by active and passive artificial immunity? 6. What is the value of temperatures and sunlight as physical disinfectants? 7. What is understood by an intermediary host in the transmission of infection, and give examples of diseases transmitted in this manner. 8. What measures must be instituted in the prevention of bubonic plague? 9. What is a diphtheria carrier, and what precautions should be observed with regard to the carrier and the community? 10. Which is preferable, the combined system of sewerage and drainage, or the separate system, and why?

Nevada November Report

Dr. Simion L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written and practical examination held at Carson City, Nov. 3-5, 1913. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 10, of whom 7 passed and 3 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
California Eclectic Medical College	(1913)	90.9
Hahnemann Medical College of the Pacific	(1905)	84.9
New York Homeopathic Med. Coll. and Hospital	(1908)	80
University of Buffalo	(1893)	75
Eclectic Medical College, Cincinnati	(1913)	87.8
Ohio-Miami Medical College	(1911)	81.8
University of Toronto	(1899)	94.6

FAILED

California Eclectic Medical College	(1903)	57.8
Hospital College of Medicine, Louisville	(1898)	57.4
Kentucky School of Medicine of Louisville	(1906)	63.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Georgia	(1899)	Georgia
Bennett College of Eclectic Med. and Surg.	(1886)	S. Dakota
Hahnemann Med. College and Hospital, Chicago	(1895)	S. Dakota
Chicago Medical College	(1879)	Illinois
Rush Medical College	(1902)	S. Dakota, (1912) Minnesota
Physico-Medical College of Indiana	(1889)	Indiana
Baltimore Medical College	(1903)	Illinois
College of Physicians and Surgeons, Baltimore	(1912)	Utah
Maryland Medical College	(1911)	S. Dakota
University of Minnesota, Homeopathic Dept.	(1907)	Minnesota
University of Nebraska	(1902)	Nebraska

Book Notices

GONORRHEA IN WOMEN. Its Pathology, Symptomatology, Diagnosis and Treatment; Together with a Review of the Rare Varieties of the Disease Which Occur in Men, Women and Children. By Charles C. Norris, M.D., Instructor in Gynecology, University of Pennsylvania. With an introduction by John G. Clark, M.D., Professor of Gynecology, University of Pennsylvania. Cloth. Price, $6 net. Pp. 521, with 40 illustrations. Philadelphia: W. B. Saunders Company, 1913.

This is the most important treatise on the subject of gonorrhea thus far prepared in the English language. The work is most elaborate in its wealth of detail and is far more than a mere monograph. While dealing chiefly with the Neisserian infection in women the scope is necessarily broader. Thus in the chapter devoted to prophylaxis, the various methods employed to prevent infection in men is set forth at length.

After an interesting and comprehensive historical account the bacteriology of the gonococcus and the pathologic changes produced in the female genital tract are described. There is an unusually full description of the pus-tube, with several excellent illustrations. Chapters on sociology and prostitution are properly placed side by side and again indicate the breadth of the author's point of view. His statistical reports are most interesting. It is stated that of half a million prostitutes in our great cities, 40,000 die annually, 30 per cent., as a result of gonorrhea Approximately 60 per cent. of all gynecologic operations are performed for gonorrhea or its results. These chapters contain numerous and elaborate statistical tables. As a result of his exhaustive study of the subject of prostitution Norris advocates legal regulation, though recognizing the difficulty of securing efficiency. He is

a strong advocate of instruction in sex hygiene for boys and girls of high-school age, believing that regulation is of minor importance as compared with educational methods in the ultimate solution of this difficult problem. Norris takes an advanced position again in his advocacy of an obligatory certificate of health for the male before marriage, and of a ruling making venereal diseases notifiable to the board of health. Indeed, he goes further and would make it a punishable offense to communicate a venereal disease.

In tracing the pathologic changes incident to this infection a topographic sequence has been adopted, beginning with the external genitalia and following the process through the vagina, uterus and appendages into the pelvis. The unusual manifestations and the remote complications are discussed in order as well as the relations of gonorrhea to pregnancy, labor and the puerperium. Gonorrhea in the extremes of life and its extragenital manifestations are clearly discussed. The operative methods of treatment are described comprehensively, emphasis being placed, however, on the importance of conservative medical treatment before surgical intervention is undertaken. In his operative procedures the author is a stanch advocate of conservative work, especially in the young woman. The cure by surgery of chronic gonorrheal processes involving the internal genitalia is essentially a mutilation, and whenever possible the function of menstruation should be preserved, as well as that of reproduction. The medicinal treatment of gonorrhea is exhaustively considered in the final chapter. The author's summary of what he considers the proper therapeutic care of the patient is of chief interest here. Foot-notes provide a vast amount of material for consultation. Far more than a text merely for perusal by the specialist or general practitioner, this volume in its breadth and comprehensive scope, as Dr. Clark well says in the introduction, may be accepted by the legislator and the sociologist as a fundamental treatise.

THE DIFFICULTIES AND EMERGENCIES OF OBSTETRIC PRACTICE. By Comyns Berkeley, M.A., M.D., B.C., Obstetric and Gynecologic Surgeon to the Middlesex Hospital, and Victor Bonney, M.S., M.D., B.Sc., Assistant and Gynecologic Surgeon to the Middlesex Hospital. Cloth. Price, $7.50. Pp. 787, with 287 illustrations. Philadelphia: P. Blakiston's Son & Co.

The object of this work, as frankly set forth by its authors, is to afford practical guidance to the practitioner when he is called on to deal with the difficulties and emergencies that attend obstetric practice. The more fundamental topics, such as the physiology and the management of normal pregnancy, labor and the puerperium, are omitted, so that the volume has rather the appearance of an operative obstetrics, differing only in that its field is broader, since it takes in all the pathology of labor, even the non-surgical complications. Thus a number of the early chapters are given over to complications of labor, such as disorders of the intestinal and urinary tracts, the gall-bladder, peritoneum and spleen, the nervous system, respiratory tract, and the heart and blood. In appendicitis the author favors operation on diagnosis. Again, in gall-stones operative interference is advised except during the last two months of pregnancy. On the other hand, in pyelonephritis conservative measures are to be adopted, operation being the rule only when the disease is bilateral. After termination, if the condition remains unimproved for one week, nephrotomy or nephrectomy will probably be indicated. Operation for hyperthyroidism should never be performed without first concluding the pregnancy. In valvular heart lesions, doubt is expressed as to whether the inevitable heart failure appears sooner in the majority of women who have borne children than in those who have remained sterile. Nevertheless, if compensation fails before the sixth month, pregnancy must be terminated, and in labor the second stage is always to be shortened artificially. Induction of abortion or premature labor in pulmonary tuberculosis is to be reserved for special cases, and the mother on no account is to nurse the baby.

In like manner the authors have advanced the more recent ideas in respect to the management of abdominopelvic tumors in connection with child-bearing and of uterine displacements with gestation. When there is evidence of retained fetal products in septic abortion, the uterus is to be cleaned out at the earliest opportunity. The tampon is the most preferred method in the treatment of accidental hemorrhage. Version and the rubber bag are favored in placenta praevia. Cesarean section is reserved for only the most favorable cases, and those in which the implantation over the cervical canal is complete.

Labor complicated by anomalies of the forces, of the genital passages and of the pelvis, and by malpresentation of the child, or by abnormalities of the child and umbilical cord, and labor complicated by rupture of the genital canal comprise a series of interesting chapters as conditions which invariably lead to operative interference. Fever in the puerperium is considered at length and from all its various aspects. Separate chapters are devoted to such topics as the breast, ectopic gestation, and anesthesia and analgesia during the labor. Obstetric operations are gone into in every detail and are profusely illustrated. Aside from a few minor technical differences, such as delivery with forceps in the lateral position, these procedures are identical in performance with those familiar in American practice. A long chapter on diseases and injuries of the new-born and a briefer one devoted to infant feeding conclude the volume.

At no time have the authors striven for brevity. The material fills a large volume and yet conciseness is evident on every page. Throughout, their views are well formulated, either in parallel columns or in one, two, three order. This, indeed, is the feature of the work. As an example, the conditions and indications for forceps extraction may be cited, or the treatment of eclampsia. Thus, while detail is abundant, verbosity is absent, and the volume gives rather the impression of completeness and extreme care in preparation.

AN ELEMENTARY STUDY OF THE BRAIN. Based on Dissection of the Brain of Sheep. By Eben W. Fiske, A.M., M.D. Cloth. Price, $1.25 net. Pp. 133, with 19 illustrations. New York: Macmillan Company. 1913.

The preparation of an elementary text-book of neurology for premedical and other college students who have neither the biologic training nor the time for the mastery of the larger manuals adapted for advanced medical students is a peculiarly difficult task. The subject is intrinsically complex and difficult, and it is rendered still more so by a confused and cumbersome terminology and often by the failure of writers and teachers to clothe the anatomic detail with functional or any other meaning. Much of that which goes under the name of neurology in our schools is a meaningless jargon of no present or future value to the student. There is a real demand for a brief and very elementary introduction to the nervous system adapted for college students in zoology, physiology and psychology, and several small books of this character have recently been published, none of which, however, is very satisfactory. Beginning students in this subject are usually at first lost in the bewildering complexity of meaningless anatomic detail, and fortunate indeed are those who find their way through these mazes to a point at which they can see the plan of the whole structure. This can be facilitated only by limiting the content of such an introduction to the most important fundamental facts and by presenting no anatomic details whose functional significance is not at once made clear. The choice of these details and the plan of presentation, moreover, must be made by a master of the entire field with a true sense of proportion of part with part and with a unifying motive always kept in mind. The laboratory student is apt to perform his manipulations, faithfully following the directions, but without giving thought to the meaning of the exercise until it is finished—if even then. A beautifully finished dissection made in this spirit has little more pedagogic value to the student than the exercise of carving an effigy on a pipe bowl. The teacher's problem is to induce the student to keep his mind intent on the meaning of the work with which his hands are engaged, and it must be admitted that he derives but little aid in this from most of our manuals of dissection.

Dr. Fiske's little book is in some respects admirably planned. It presents an account of the gross anatomy of the

brain of the sheep, with laboratory directions for its study, together with discussions of phylogeny, embryology and functions. These matters are not very well coordinated, however, and the student will probably fail to carry away any but hazy notions of the actual working of the nervous system from the work as a whole. The physiologic and other explanatory data appended to the anatomic sections are not always happily phrased, and the work is far from presenting (even when all dissections are made as directed) a clear picture of the brain as a functioning organ. The descriptive part, moreover, is marred by many erroneous statements. The chapters are illustrated by photographs of lower vertebrate brains taken from the Ziegler models, by a few simple sketches of embryologic stages of the human brain, and by a series of photographs of surface views, dissections and cross-sections of the brain of the sheep. The latter are worthy of the highest praise and, with the accompanying simple key drawings, will prove very useful.

PRACTICAL BACTERIOLOGY, MICROBIOLOGY AND SERUM THERAPY (MEDICAL AND VETERINARY). Text-Book for Laboratory Use. By Dr. A. Besson. Translated and Adapted from Fifth French Edition by H. J. Hutchins, D.S.O., M.A., M.R.C.S., Heath Professor of Comparative Pathology and Bacteriology of University of Durham. Cloth. Price, $10.50 net. Pp. 892, with 416 illustrations. New York: Longmans, Green & Co., 1913.

This work has been designed purely as a laboratory guide, the one object constantly in view in its preparation having been to make it a book which would both direct the beginner step by step and, at the same time, afford to the more skilled worker such assistance as would enable him to pursue his researches in a profitable direction. It is one of the most complete and satisfactory laboratory guides to microbiology with which we are acquainted. The value to all types of students is much enhanced by the avoidance of purely theoretical discussions. The subject-matter is arranged in seven parts as follows: general technic, the pathogenic bacteria, the parasitic fungi, the pathogenic spirochetes, the protozoan parasites, the filterable viruses, and the application of bacteriologic methods to the examination of water, sewage and air. Each of these sections is subdivided into many groups, so that the mass of information given is enormous. Each bacterial species is minutely discussed, the morphology, biologic properties, detection and isolation of the organism and the technic and results of animal inoculation being carefully and fully outlined. The illustrations, both plain and colored, are excellent.

MASSAGE. Manual Treatment. Remedial Movements. History, Mode of Application and Effects; Indications and Contra-Indications. By Douglas Graham, M.D. With Chapter on Massage of the Eye, by Dr. A. Darier. Fourth Edition. Cloth. Price, $5 net. Pp. 574, with 75 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This is a comprehensive, scientific work of a man who has devoted his life to the subject, and who has his own ideas and knows how to express them. His knowledge of French, German and Italian has enabled him to review a great deal of the literature on massage. What particularly makes the book readable is the fact that Graham always has an eye open for the humorous, and the fact that his humor sometimes is turned into sharp satire does not make it less easy to read. Particularly good are the sections on the history of massage, on the mode of operation and on traumatic joint affections.

HANDBOOK OF PHYSIOLOGY. By W. D. Halliburton, M.D., LL.D., F.R.C.P., Professor of Physiology, King's College, London. Eleventh Edition (Being the Twenty-Fourth Edition of Kirkes' Physiology). Cloth. Price, $3 net. Pp. 923, with nearly 600 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The present edition of this hand-book differs from the preceding one because several chapters have been rewritten and the others revised. The last two chapters of the previous edition are replaced by a new one on reproduction, development, growth and death. Heredity and eugenics are also briefly discussed. The work of revision, together with the introduction of considerable new matter, has been conducted in such a manner that the size of the book instead of being increased is actually less by a page than the previous edition.

Medicolegal

Defective Prosecution on Quarantine Order—Powers Under Statutes to Protect Public Health—Judicial Notice of Scarlatina

(State vs. Rackowski (Conn.), 86 Atl. R. 606)

The Supreme Court of Errors of Connecticut reverses for error a judgment of conviction, and orders a new trial for the defendant, who was charged with having violated an order of the health officer of the borough of Naugatuck quarantining her and her two minor children as persons whom the health officer had reasonable grounds for believing to be infected with scarlatina or scarlet fever.

The court says that the information assumed to charge the crime provided for by Section 2552 of the General Statutes of Connecticut, for a violation of an order of the health officer made under Section 2549, reading "Any town, city, or borough health officer or the board of health of a city or borough, may order any person whom they have reasonable grounds to believe to be infected with any malignant, infectious or contagious disease, into confinement in a place to be designated by them, there to remain so long as said health officer or board shall judge necessary." Before a lawful order can be made under this statute, the health officer must have a reasonable belief that the person or persons ordered into confinement are infected with a contagious disease.

The proof failed to meet the charge inasmuch as the information charged a violation of an order quarantining the accused because the health officer had reasonable grounds to believe that she was infected with a contagious disease, whereas the record did not show that the accused was either infected with that disease or that the health officer had reasonable grounds to believe she was so infected. There was therefore no basis for the charge that, if the jury found that the accused herself broke the quarantine by going abroad, it was their duty to find her guilty.

The state pointed out, with emphasis, the danger to the community if one having been exposed to a contagious disease might not be quarantined by the health authorities. Lest such a want of power may be inferred from this decision, the court points out the source of power of the health officer to prevent the spread of contagious diseases by an order quarantining those who may have been exposed.

This information did not charge the accused with violation of an order of confinement for having been exposed to a contagious disease. The statute on which it is based does not provide for or contemplate such an order. But that statute is only one of a body of laws designed to protect and preserve the public health. Such an object is a chief end of government, and the legitimate exercise of the power of the state for the accomplishment of such a purpose is a governmental duty which falls within the police power. Its origin rests in necessity. The prevention of the spread of disease is required either by express statutory provision or by the necessary implication arising out of the imposition of such a duty.

The Connecticut statute, Section 2531, as amended in 1905, invested the health officer of the borough of Naugatuck in common with the health officer of every city and borough of the state with "all powers necessary and proper for preserving the public health and preventing the spread of diseases therein." Statutes whose object is the protection and preservation of the public health should receive a liberal construction. The powers conferred by Section 2549, to prevent the spread of contagious diseases, are not exclusive, and do not limit the power conferred by Section 2531, as amended, over the spread of contagious diseases to orders relating wholly to the person who has the disease or whom the health officer has reasonable grounds to believe to be infected with such disease. The power to make all reasonable health regulations, including the quarantine of those who may have been exposed to contagious disease, is within the fair intendment of the powers conferred by Section 2531, as amended. The violation

of such an order or regulation would be within the penalty of Section 2552.

The health officers of the state are not only bound to make all necessary and proper regulations to prevent the spread of disease, but they are bound to exercise the highest diligence in enforcing these regulations. Common knowledge tells us that contagious diseases may be communicated by those who have been exposed to the diseases. And it is the common practice for the health authorities to detain all such persons from going abroad so long as the danger of contagion is imminent from those who have been exposed.

The court affirms the legality of reasonable quarantine regulations by the Naugatuck borough health officers, designed to prevent persons infected with a contagious disease, or suspected by the health officer, on reasonable grounds, of either infection or exposure, from intercourse with other persons in the community. But the prosecution for violation of the regulations must be based on the order made.

As no complaint was made of this order on the ground that no period of confinement was specified, the court assumes that the period intended by the order was the duration of the danger from the disease to be determined by the health officer. Such an order was a reasonable quarantine regulation.

A mother who directly violates a lawful order of a health board, whether made under Section 2549 or not, or who knowingly permits her child for whose custody she has legally been made responsible to violate that order, is equally guilty of the offense whose penalty is prescribed by Section 2552. The jury might under the facts before them have found the existence of such an order.

One instruction to the jury gave rise to the question whether there exists an experience or probability so general as to have resulted in a presumption of universal acceptance, in the absence of proof to the contrary, that when a child is abroad in violation of a quarantine order this is with the mother's knowledge and consent, or whether there is any policy or convenience of the law which has compelled the acceptance of such a presumption. The court thinks that there is no policy of the law to rest this presumption on, and that experience proves the reverse of this assumption. A mother's love for and care of her sick child is the general presumption of all people, of all times, and of every social rank. There is no presumption of law that the mother knew and consented to the violation of the quarantine order, and hence the trial court erred in charging that the state made out a prima facie case against the mother by mere proof of the violation of the order by the children. Whether any inference was to be made of the mother's knowledge and consent to the violation of the quarantine order from the circumstances of this case was an inference of fact within the province of the jury. An inference which may or may not be drawn by the jury is far different from a presumption of law which must be drawn until proof to the contrary is offered.

The court was clearly right in taking judicial notice that scarlatina is an infectious or contagious disease.

City without Right to Pollute River with Sewage

(Attorney-General vs. City of Grand Rapids (Mich.), 141 N. W. R. 890)

The Supreme Court of Michigan says that this was a proceeding to declare and to abate and restrain the continuance of an alleged public nuisance which was claimed to result from acts of the city in conveying through artificial means its sewage into the Grand River, which flowed down the river and was cast on the lands below that city, and particularly on those lands which are adjacent to and within the village of Grandville. In the court's opinion the equities of the case were with the complainants, and the testimony made out a case of public nuisance. If the city in emptying its sewage into Grand River, as shown by the evidence, created a nuisance to the public or riparian proprietors below the city, the continuance or creation of that nuisance might properly be restrained by injunction, and the attorney-general was a proper complainant.

Undoubtedly the city has the right to make a reasonable use of the waters of the river as a riparian owner. But the court's attention has not been called to any statute giving the city the right to use Grand River below its limits as a sewer for the purpose of carrying away its waste and refuse in an unreasonable manner; and, if it were attempted by statute to give such a right, the statute would be unconstitutional, unless it first provided that the owners of property along the river should be compensated for damages to be first determined by constitutional methods for destruction of such property rights. If the city creates, or threatens to create, a public nuisance, particularly outside of its corporate limits, it is subject to the same rules as would be a private individual, particularly when in the creating of such nuisance it acts not in a governmental but in a private capacity.

There can be no prescriptive right, that is from long usage, to pollute a stream by the discharge of sewage in such a manner and to such an extent as to be injurious to the public health. Even assuming that a prescriptive right to foul a stream with sewage can be acquired, such must be restricted to the limits of it when the period of prescription commenced; and if the pollution be substantially increased, whether gradually or suddenly, the court will interfere by injunction to prevent the wrongful excess; and, if it be impossible to separate the illegal excess from the legal user, the wrongdoer must bear the consequences of any restrictions necessary to prevent the excess, even if it unavoidably extends to the total prohibition of the user.

No person is entitled on the ground of ancient custom to the privilege to collect a mass of sewage matter and pour it at one point into a stream in such a quantity that the river cannot dilute it on its passage down to the lower riparian proprietors, as the effect of such an act is to create an evil which must be illegal, being such as no custom can authorize. The general rule is that sewage cannot be cast into the stream to such an extent as to pollute it. Sewage cannot be thrown into the stream in such a way as to render the water foul and unfit for use.

Wherefore the decree of the court below in favor of the defendants is reversed, and one entered for the complainants restraining the city, its boards, officials, servants and agents from continuing to discharge the sewage of the city into the Grand River, until the same shall have first been, by the use of a septic tank or tanks, so deodorized and purified as not to contain the foul, offensive or noxious matter (which it now contains) capable of injuring the complainants or their property, or causing a nuisance thereto; such injunction to become operative one year after the date of the settling of decree. The complainants will also recover of the defendant city their costs of both courts.

Physician's Liability—Presumptions Do Not Relate Backward

(Adams vs. Jaager (Iowa), 139 N. W. R. 1096)

The Supreme Court of Iowa reverses for trial errors a judgment for alleged malpractice in the treatment of fracture of the neck of the femur of the plaintiff's left leg, sustained January 11. The defendant was immediately called, and arrived at the plaintiff's house within an hour and a half of the time she received her injuries. He continued to treat the case until May 29. On June 5 the plaintiff's husband called on the defendant and paid his bill, making no complaint. A roentgenoscopy, made June 24, disclosed the fact that the fracture had not been reduced, that there was a non-union of the broken bones, and that one end of the bone had extended up into the flesh for an inch or more, causing excruciating pain; but there was no testimony of any negligence on the part of the defendant in his original treatment, or in the use of the appliances which he did in fact use.

There was error in the instructions given to the jury. If the court had in mind the thought that the defendant did not, in discharging the plaintiff, properly direct her as to the care of the limb, or that he did not then examine her for misplaced bones, he should have instructed the jury that it could not allow for any pain or suffering occurring prior to

the time that the defendant was found to be negligent. In other words, if, as the court instructed, the defendant was not negligent in his original treatment, he could not be held for any suffering endured by the plaintiff during the time this treatment continued, and, if held responsible for something occurring after this treatment ceased, he should be held liable only for such pain and suffering, if any, as resulted from his negligence at that time, and not for what might have been endured from the beginning. And, in any event, the plaintiff could not recover, unless she proved the negligence charged in her petition, and her damages must be limited to such as proximately arose from the negligence charged.

Presumptions do not ordinarily relate backward. A condition, once shown, may be presumed to continue; but ordinarily from a condition once found no presumption is indulged that it has existed for any given time in the past. True, such presumptions sometimes arise in virtue of the nature of the condition; but this arises from proof of other things in addition to present conditions, as its condition of permanency of progressiveness.

Liability of Agent of Corporation for Unlawfully Practicing Medicine

(Norwood vs. State (Texas), 158 S. W. R. 270)

The Court of Criminal Appeals of Texas says that the main contention in the court below of the appellant (defendant), who was convicted for unlawfully practicing medicine, was, in effect, that, while numerous patients were treated in the hospital of which he had charge, it belonged to a corporation, and he was the mere manager, employee and agent of the corporation in whatever was done in the way of treating patients, receiving pay therefor, etc. The court at his instance gave this special charge to the jury: "You are instructed that if you believe from the evidence that the treatment given to Vinnie Spangler was given by the Norwood Institute, a corporation, and not by the defendant, then, in that event, your verdict should be for the defendant, and you should say by your verdict not guilty." This special charge was not the law and should not have been given. Even if he was an officer, agent, servant or employee of said corporation and committed the offense charged, even though purporting to act or acting for the corporation, he would be guilty. Mr. Bishop in his Criminal Law, in Section 892, says, "An agent or servant who, knowing the facts, does a criminal thing for his principal or master, is answerable to the criminal law precisely as though he had proceeded self-moved, and for his own personal benefit. And it is the same when with the like knowledge he merely assists therein." Again, in Section 685, he says, "The authorities agree that there are in misdemeanor no accessories either in name or in the order of the prosecution." Mr. Branch in his Texas Criminal Law, Section 681, lays down this rule: "There is no distinction between principals and accomplices in misdemeanors; a party who would be an accomplice if the offense was a felony is a principal if the offense is a misdemeanor. If defendant comes either within the definition of an accomplice or a principal, he is a principal in a misdemeanor." Then there was a fatal variance between the allegations and the proof in this case in that the allegations charged that the defendant did unlawfully treat a disease or disorder, to wit, did treat Vinnie Spangler for consumption, diagnosing her case and prescribing some gas treatment therefor, while the proof did not establish or tend to establish that Vinnie Spangler had consumption or was treated for consumption.

Small-Pox.—Eleven of the thirteen patients now in the small-pox hospital of Chicago, qualifying for waffle-iron faces, came from a "health institute" which denounces vaccination as wicked, superstitious, useless, nasty, impertinent and an "invasion of personal rights." This condition is typical. Small-pox has been well named the "poisoned arrow of the fool-killer." Those who want to escape these arrows had better provide themselves with the only shield that experience has proved effective—vaccination.—Chicago *Journal*.

Society Proceedings

COMING MEETINGS

American Physiological Society, Philadelphia, Dec. 27-29.
Society of American Bacteriologists, New York, Dec. 31-Jan. 2.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

CHICAGO PEDIATRIC SOCIETY

Regular Meeting, held Nov. 21, 1913

The President, DR. FRANK X. WALLS, in the Chair

Report of Two Cases of Pachymeningitis Hemorrhagica

DR. GRACE MEIGS: This condition has been well recognized in the adult for a long time, but only recently as not uncommon in children, especially in infants. The onset is characterized by convulsions, vomiting and signs of acute meningitis. In 1881 it was first suggested that the condition could be diagnosed during life. Finkelstein, in 1904, suggested that a puncture of the fontanel could be made in these cases, and a bloody fluid, characteristic of the disease, could be obtained. He also was the first to mention the presence of retinal hemorrhages.

The cause of pachymeningitis hemorrhagica has been variously explained. The older writers, in describing the condition in adults, ascribed it chiefly to tuberculosis and syphilis, but Huebner thinks that congenital syphilis is by far the most frequent cause; also chronic gastro-intestinal diseases. Finkelstein, however, thinks that rickets is the most important predisposing cause. Hahn suggests that it is a manifestation of the hemorrhagic diathesis. Virchow thinks that the primary lesion is an inflammation of the dura mater. All are agreed that it is apparently due to toxins.

The post-mortem findings are characteristic. The inner surface of the dura is covered with a membrane, most abundant on the convexity, but usually present all over the dura. It is rather closely adherent, but can usually be peeled off from the dura, leaving it quite smooth and only somewhat thickened, with a few ecchymoses. The membrane varies in thickness from the most delicate cobweb-like membrane to a very thick connective-tissue layer. There are many layers, and between them the hemorrhage occurs, spreading them apart so as to form a bag, into which there is often an effusion of fluid, and then probably later hemorrhages; at least all stages are found with simply a yellow fluid or a fluid containing blood, or simply with blood-clots. The brain itself shows no changes, except evidence of pressure.

It is not known just what the effects of such a condition would be on the brain in after-life. It is possible that some of the paralyses of childhood may be due to this condition. The spinal fluid in all the cases reported contained some blood—very often only found microscopically; but sometimes the fluid was markedly hemorrhagic.

In some cases no clinical symptoms of any kind are shown during life, but the condition is found post mortem. In those which do show symptoms there are two classes: First, the symptoms are those of hydrocephalus with recurring attacks simulating an acute meningitis, with coma, convulsions, vomiting, strabismus, opisthotonos and all the other symptoms; secondly, the symptoms are merely those of hydrocephalus, together with perhaps increased reflexes or a little rigidity. In both classes there is evidence of a hydrocephalus—that is, the fontanel is large and bulging, the sutures are gaping, and there is often a hydrocephalic stare. This enlargement of the head is sometimes very sudden. The most characteristic findings are those of a choked disk and retinal hemorrhages, the latter being fairly diagnostic. Important for diagnosis, however, is the finding of fluid on puncture of the fontanel, and this procedure is quite without danger in all cases. The only thing to be avoided is puncture of the central sinus, which can easily be done by making the puncture at the lateral angle of the fontanel. A needle with a short point is used. In the positive cases, immediately on

going through the skin and somewhat resistant dura there is a gush of fluid, under mild pressure. This fluid is quite characteristic, being composed of a bright yellow or orange serous layer, and a layer of dark, chocolate-colored erythrocytes. These show evidence of having been long in the fluid. The erythrocytes settle at the bottom when the fluid stands, and there is no coagulation.

In treatment, probably the most commonly used measure is lumbar puncture, and this is proved to have good effect because several patients who have been observed through the course of the disease and have died from some other diseases afterward have shown the trouble in the stage of resolution and cure. Finkelstein does not think that puncturing the fontanel does any permanent good. He advises the use of gelatin, and injects 20 c.c. of a 10 per cent. solution. Huebner uses the antisyphilitic treatment with the idea that most of the cases are syphilitic, and he has seen good effects.

My first case while not a definitely proved case, was very suggestive of this condition. The baby was 3 months old, and was admitted with the diagnosis of hydrocephalus. There was no syphilitic or tuberculous history. The condition of the head had been present since birth, but had lately been getting worse. Examination showed a well-developed child; the head was enlarged and the sutures separated; the eyes were turned to the right and fixed. A few days later the right arm was inverted and flexed, and not moved; later the left arm showed the same condition. For the first few days the condition was quite good, but about three days after entrance an acute attack began, with convulsions, lasting one and a half minutes, with twitching of the right side of the face. Temperature was 101 F. Stools were good at this time. Lumbar puncture showed fluid under a high pressure; there were 7,000 leukocytes to the cubic centimeter. Noguchi was positive. There was no evidence of syphilis. Reaction was positive for a condition of inflammation. The cultures and smears were unsatisfactory. An organism was seen which the pathologist considered a contamination. It looked rather like an influenza bacillus. A tentative diagnosis of pachymeningitis was made, and puncture of the fontanel on the left side done because the symptoms were so well localized on the right side. The fluid was obtained under quite mild pressure, was opalescent and with quite a mixture of blood, but was not yellow On standing, it coagulated and there was a marked deposit of blood. It was sterile. Spinal puncture made at the same time gave an opalescent fluid, with a slight precipitate of blood. It was seen only after having stood for twenty-four hours. The blood was evidently thoroughly mixed with the fluid. The leukocyte count was 100 per cent. No cell count was made, on account of the mixture with blood. After this the child's condition improved, but later it developed nasal diphtheria and died.

The second case was undoubtedly one that could not be diagnosed during life. There were no symptoms except enlargement of the head. The child was 4 months old, and was brought into the hospital, not on account of the condition of the head, but merely because of the failure to gain, vomiting and constipation. It had a history of gastro-intestinal disturbance. The child was small, emaciated and old-looking. The head was very large and the face small; the anterior fontanel was 4 fingers in diameter. The coronal suture was very wide; the other sutures were plainly palpable. The circumference of the head was 41.25 cm. The neck was not rigid. General examination was entirely negative, except for the emaciation and for the finding of an enlarged spleen and enlarged lymph-nodes. The urine was negative. The Wassermann reaction, both in blood and in spinal fluid, was negative. Lumbar puncture was performed and 20 c.c. of fluid obtained—quite clear and under considerable pressure. The remarkable thing in the course of this case was the decrease in the size of the head (from 41.25 cm. on entrance to 39 cm. at death), which began very soon after the lumbar puncture. While in the hospital there was gradual loss in weight, very bad stools, and finally, twenty-four days later, during very hot weather, the child died quite suddenly. The diagnosis was decomposition and internal hydrocephalus.

Post-mortem was made thirty-six hours after death, and an examination only of the head made, and the condition of pachymeningitis hemorrhagica shown. When the skull cap was taken off bloody fluid escaped, and we found that the inner surface of the dura was entirely covered with a membrane which was in some places quite delicate and thin, and in others thick. It could be peeled off the dura, but was rather firmly adherent in some places. The base of the brain was also covered with the same membrane. There were a great many different layers to be distinguished, and in one place, over the left anterior portion, underneath the puncture, there was about an ounce of bloody fluid. The brain itself was soft and the surface quite negative. There was a moderate degree of internal hydrocephalus present. Microscopically, the dura was thickened and this membrane showed all the different stages of granulation tissue and connective tissue. In some places numerous large blood-vessels were seen, and in other places ecchymoses.

The Feeding of Five Hundred Infant-Welfare Babies

DR. R. A. KROST: The work done at the conference now is exceedingly gratifying, the former distrust shown by mothers has disappeared, and they now follow our instructions quite faithfully in most cases. The gospel of regularity of feedings, the use of certified milk and the longer interval of feeding has spread, as evidenced by the number of new cases. Individual milk prescriptions calling for certified milk are given. They are prepared by the nurse at the baby's home until the mother can prepare them correctly. The feedings are made as simple as possible, using usually an ounce and a half of certified milk to the pound weight of the child. The milk is diluted with barley-water in varying amounts, according to the child's age, and to the diluent about 5 per cent. cane-sugar is added, although almost never is more than ¾ ounce used. I think that 2 ounces is nearer the amount necessary to bring about a 4-ounce gain or more per week with the small amount of sugar used. Cane sugar is used because it is cheaper. In cases of diarrhea the babies were put on saccharin-sweetened barley-water for from twenty-four to thirty-six hours; then diluted boiled skimmed milk was used, then diluted whole milk, and, lastly, sugar was added. Early in the work I fed the babies on the four-hour interval plan, and later changed it to three because of the inability to feed the ordinary healthy baby enough food to satisfy its caloric needs by the four-hour feeding without using too concentrated a food or too much sugar. Between feedings a few ounces of boiled water were given, if the infant cried.

A mistake too often made in the cases of malnutrition and marasmus is a frequent change in food. A baby becomes adapted to its food; therefore, it is unwise to change it. The weight may remain stationary for a time, or there may even be a slight loss, but eventually there is a gain. In addition to the milk, once a day we gave the babies aged 6 months or over, and sometimes even younger babies, broths containing crumbled toast or farina. Probably the addition to the cow's milk diet brought about its better digestion and assimilation.

I have used boiled milk for six months and found no bad effects from its use. Constipation is perhaps a little more frequent and persistent than on raw milk, but not much. There is little vomiting, less than on boiled milk, and less colic. The gains are about the same from week to week, but greater on boiled milk if followed for months.

There were twenty-eight deaths from all causes in 5,475 cases, a percentage of 5.8. In eighteen cases diarrhea or nutritional disturbance was the cause. These diarrhea deaths occurred during July, August and September.

DISCUSSION

DR. ALBERT H. BEIFELD: The most common causes of infant mortality are poverty, ignorance and neglect. Simple mixtures should always be used. One of the most important points is the training of the physician. He should learn that each component of breast-milk has a definite physiologic action in digestion and nutrition, and he should be able to manipulate each one of the components so that he will obtain

a result without having to rely on the complicated mixtures, such as *Eiweissmilch*, buttermilk, malt soups, etc. There are certain faults which we are tending to fall into in this matter. One is that we do not give enough fat in the food, and another that we are inclined to a rather slavish adherence to the malt-dextrose preparation. Just as the mother should be trained to develop a certain sense of independence in caring for the baby and understanding how to control its feedings, so the baby's intestine should be trained to endure the more actively fermenting sugars, such as cane-sugar or milk-sugar, and if we persist slavishly in the use of malt-dextrose preparations we are pampering the baby's intestine. These things should be used as therapeutic measures, as intended by the inventor. I endorse the early addition of foods in the feeding of these bottle-fed babies. It has a striking effect, when we give a little portion of soup each day to the baby which has been fed solely on milk. I have seen several babies recently that have been brought from hospitals where they have been fed according to rule and regulation and the highest dictum of our scientific calling, and they were in a miserable condition because they had had nothing to eat.

One other point: We can get along very nicely without the use of *Eiweissmilch* by the administration of simple protein, the dried casein preparations. I recall two cases, with astonishingly striking results, in which, after three, four and five weeks of these slow losses in weight, the addition of a certain casein preparation brought about a gain in weight in two or three days. I think that we are inclined to be afraid of the amount of sugar used. It is neither a foreign body nor a poison. I think that just as we should use a sugar which will train the baby's intestine, we should use as liberal a supply as the condition demands. The outlook is very good in the home modification of milk. At first the mothers are a little bit slow, but when they see the results they become enthusiastic.

DR. H. F. HELMHOLZ: Dr. Krost thinks that very few cases of diarrhea are due to overfeeding. I should like to call attention to the large series of cases published by a pediatrician in Breslau, in which babies, given as low as 50 and 60 calories per kilogram of weight, gained very rapidly. On questioning the mothers closely it was found that they were giving the babies additional food. Even though we have these mothers very much under our control, still a great deal of food is given, frequently in excess of that which has been ordered.

DR. FRANK X. WALLS: These results are particularly interesting, when we consider that only 3.8 per cent. of these babies die. It is in striking contrast to the figures in our text-books as to the death-rate among artificially fed babies. When we consider this low mortality at the conference, it would seem as if the death-rate mentioned comes in great part from the other large majority which are under the treatment of physicians who probably have not the training that the conference physicians have.

The question of weaning babies is an important one. I have found in private practice that great harm often comes from attempting to put a baby who has received only mother's milk for seven, eight or nine months, on other food. It will often refuse it for a week and become desperately ill.

DR. JOSEPH BRENNEMANN: We are perhaps apt to overlook the striking results obtained with such simple measures. That point should be emphasized. When we think of what the mortality ordinarily is, one is impressed with the fact that these results are striking. Practical infant-feeding cannot be learned in a hospital—it is an ordinary proposition. The vast majority of babies are fed in the home, and conditions in hospitals are entirely different. I am not saying anything against the work done in hospitals, but such a paper as this, giving such results, would certainly lead one to think that there is a good deal in the idea that babies ought to be fed at home as much as possible.

The Use of Dextrose Solutions in Acute Intoxication in Infants

DR. H. F. HELMHOLZ: In such cases, because of a severe diarrhea, food must be administered by the subcutaneous or intravenous route. It has been customary to give simply a sodium chlorid solution, isotonic with the blood, or Ringer's solution. Recently Kausch called attention to the advantage of giving sugar solution instead of a saline solution. He used a 5 to 7 per cent. solution of dextrose, giving a liter either subcutaneously or intravenously. The sugar is not only well tolerated, but the worse the condition, the greater the sugar tolerance. In cases of cyclic vomiting, which are usually marked by an intense acidosis, saline-dextrose solutions by clysma by the drop method have given good results. It seems probable, therefore, that dextrose added to Ringer's solution should act beneficially in cases of acute gastro-intestinal intoxication marked by acidosis, extreme prostration, vomiting, diarrhea and collapse.

Our routine method of treatment is to withhold all food for from twelve to twenty-four hours, giving merely water or tea by mouth, and stimulating the failing circulation by the use of caffein, camphorated oil, brandy and saline solution subcutaneously. The demand for food is great. All of the infant's resources are being exhausted by the disease. The only route for placing food in the body is the subcutaneous or intravenous. In such cases dextrose is the ideal agent to use. It can be given subcutaneously, say 50 c.c. of a 50 per cent. solution, without harm. Almost 60 gm. have been given, with only a trace appearing in the urine. The most important thing to ascertain is whether the dextrose solution is indicated, whether it has any effect on the rapid loss of weight, and whether its presence in the tissues leads to edema. Finally, what are the effects on the clinical picture?

The solution is prepared as follows: To 1,000 c.c. of freshly distilled water add dextrose, 60 gm; sodium chlorid, 7.5; sodium bicarbonate, 0.2; calcium chlorid, 0.2, and potassium chlorid, 0.2. Filter and sterilize in flasks of about 100 c.c. capacity. The solution is given hypodermically, either by gravity or by means of a large syringe, in doses of from 50 to 200 c.c. It is injected under the skin of the abdomen or under the pectoral muscles. The smaller doses at shorter intervals are preferable.

We have given the solution in about twenty cases, most of the patients being *in extremis*. In not a single instance was sugar found in the urine. Unfortunately, the stools were not examined for sugar, although it is probable that only very small amounts of sugar left the body through that tract. It would appear, therefore, that the infant in a state of intoxication can tolerate from 4 to 6 gm. of sugar two or three times a day and completely utilize it. Whether or not concentrated solutions can be given with greater benefit is unknown. A study of the weight-charts shows that the water is retained better with the sugar than without it, so that the sugar solution is preferable to the salt solution. In several instances in which the toxemia was intense the loss of weight was comparatively slight, and at no time during the injection was there any palpable edema to explain the maintenance of weight. In some instances the weight was greater at the time of death than on admission. In only exceptional cases were the losses in weight such as one is accustomed to see in these cases. In some cases of intoxication there is apparently no effect from the use of sugar solution. In the majority of cases, however, there was quite a definite improvement (1) in the tendency to come out of the coma; (2) in the improvement of the turgor, and (3) in the circulation. In one or two instances it seemed to be the only thing that kept the infant alive.

DISCUSSION

DR. J. H. HESS: Did you notice the effect of the administration of dextrose on the acetone in the urine? How long did you keep these babies on the dextrose, on the average?

DR. H. F. HELMHOLZ: Usually we kept them on water for from about twelve to twenty-four hours, and then started them either on very minute amounts of *Eiweissmilch* or breast-milk. The other routine was about as we have been accustomed to doing. We kept up the use of dextrose solutions for longer periods after we started other foods, but otherwise the feeding was carried on just about as usual. We

could not obtain any urine until after giving the solution—and in one case it was twenty-four hours after.

DR. ALBERT H. BEIFELD: Did you find albumin in almost every case? It has seemed to me that an irritated kidney sometimes holds back the salt and sugar, just as we hear of a diabetes being controlled by a nephritis. If you had a nephritis in every case it might explain the absence of sugar in the urine.

DR. H. F. HELMHOLZ: After we got further along, we obtained specimens of urine in which there was no albumin, but, as Dr. Beifeld undoubtedly knows, it is usually most severe. We found casts and albumin, but they did not seem to have any related function, nor did the retention of sugar seem to have any relation to the irritation of the kidney from the other cause.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Ophthalmology, New York

November, XLII, No. 6, pp. 577-691

1 New Instruments for Measuring Visual-Field Defects. C. B. Walker, Boston.
2 Some Forms of Retinal Tuberculosis. A. Knapp, New York.
3 Discission of Crystalline Lens. E. Jackson, Denver.
4 Clinical and Anatomic Report of Case of Congenital Distichiasis. H. L. Begle, Detroit, Mich.
5 Pathogenesis of Scleral Staphyloma. A. F. Mattice, Seattle, Wash.
6 Weight of Infants' Lenses and Their Solids. C. A. Clapp, Baltimore.

Arkansas Medical Society Journal, Little Rock

November, X, No. 6, pp. 145-166

7 Skin Grafting. St. C. Cooper, Fort Smith.
8 Phenol-Petrolatum. S. S. Warren, San Angelo, Texas.

Boston Medical and Surgical Journal

November 27, CLXIX, No. 22, pp. 777-816

9 *Clinical Value of Wassermann Reaction. A. Post, Boston.
10 *Comparative Psychology in Relation to Medicine. R. M. Yerkes, Cambridge, Mass.
11 *Problems of Adolescent as Seen in Psychopathic Hospital Outpatient Department, Boston. W. P. Lucas, San Francisco.
12 *Transfusion by Means of Glass Cylinders. A. R. Kimpton, Boston.
13 *Use of Bacterial Vaccines in Acute Septic Conditions of Oral Cavity Met with by Dentist. L. S. Medalia, Boston.
14 *Cancer Control. J. C. Bloodgood, Baltimore.
15 *Effect of Nitrogenous Waste Products in Blood in Chronic Interstitial Nephritis. M. Seymour, Boston.
16 Terminology of Medicine in Relation to Its Original Sources. S. Deland, Boston.

9. **Value of Wassermann Reaction.**—Post suggests that the Wassermann reaction should be regarded as a symptom like other symptoms, and in relation to other symptoms, it will prove a wonderful help. To insist on calling it a test, confuses rather than aids.

10. **Comparative Psychology in Relation to Medicine.**—Yerkes says there are no aspects of organic reaction which are not worthy of accurate measurements in a psychologic investigation. The reflexive and the instinctive often prove to be quite as important as the impulse or voluntary. Comparative psychology deals with facts and principles which are of extreme importance to the physician; it deals with these facts in a systematic, quantitative, law-evoking manner which renders it immediately serviceable to medicine.

The situation in Yerkes' opinion is this: A science of conscious behavior, introspective and quantitatively observational, comparative and rigorous in its demands for verifiability, is developing. Will those who are interested in medical education make use of it or will they continue to permit students to grapple with the problems of human nature without systematic training in the methods of studying conscious behavior, and without a good working knowledge of the facts and principles of human behavior? It is a case of "heads I win, tails you lose," for comparative psychology has much to give and medicine much to gain, and whether or not students of medicine avail themselves of its assistance, it will progress steadily, little by little supplying the principles of organic nature which should enter into the foundations of our social sciences and guide in the varied applications of natural science.

11. **Problems of the Adolescent.**—During the last eight months Lucas examined 123 patients between the ages of 10 and 20 years; 71 per cent., or 88, of these showed some evidence that adolescence had some relation to the condition for which they were brought in. The reasons for bringing these cases in was mainly mental examination. Physical examination brought out the fact that over 39 per cent. of these individuals were normal; under par, 30.89 per cent.; nervous, 24.39 per cent.; those having speech defects, 12.19 per cent.; eye, 9.75 per cent.; ear, 4 per cent.; epilepsy, 5 per cent., and enuresis, 4.87 per cent.; also those having had previous convulsions, 6.5. Naturally, the greatest disturbance was in their volitional powers; a very large percentage being defective or retarded (57.7 per cent.).

12. See THE JOURNAL, Nov. 1, p. 1628.

13. **Bacterial Vaccines in Acute Septic Conditions of Mouth.**—Medalia attempts to show by a citation of cases that vaccine treatment is of value in acute septic dento-alveolar abscesses—even the worst types of mandibular impacted third molar abscesses having apparently yielded well to this treatment. Such cases with septic apical abscesses, especially the deep-seated ones or the so-called blind abscesses, acute and subacute, have been greatly benefited by the vaccine method of treatment. Medalia believes that there is a big field for vaccine treatment in acute and subacute dento-alveolar abscess cases and its wide-spread use will save considerable suffering and loss of teeth to the patient, and annoyance to the dentist.

14. Abstracted in THE JOURNAL, December 6, p. 2100.

15. **Nitrogenous Waste Products in Blood in Chronic Interstitial Nephritis.**—The effect of high and of low proteid diet on patients suffering from chronic interstitial nephritis, with increased arterial tension was studied by Seymour. Fourteen patients were selected, each case having an arterial hypertension, persistent low gravity urine, with small amounts of albumen, and rare hyaline casts. For five days the patients were given the regular hospital diet, which contained about 60 grams of proteid. At the end of this period the proteid content of the diet was increased and this diet maintained for seven days. By the sixth day they were given about 180 grams of proteid daily. During the next period of eight days, the proteid was reduced, so that they were given very small amounts, the daily average for this period being about 12 grams.

The nitrogen content of the blood was measured at the end of the normal hospital diet period, and at the end of the high and of the low proteid diet periods. Urinary nitrogen determinations were made daily, except on the days when the phenolsulphonephthalein tests were made. These latter were made five times during the course of the experiment. Out of the fourteen cases, eight showed an increase in the nitrogen content of the blood at the end of the high proteid period. Of these eight cases showing a nitrogen increase, six had edema of the face with puffiness of the eye-lids, and complained of nausea and headache. All of these patients vomited, and in each case refused food at the end of the sixth day. Two of the patients who showed the greatest increase in the blood nitrogen, had more marked symptoms than those showing a more moderate one. Two cases showing an increase in the nitrogen, had no symptoms.

Of the six patients showing no increase in the nitrogen of the blood, one had only edema of the face, two had nausea and vomiting with slight edema of the face, two were drowsy, dull, and complained of headache. One patient showing no nitrogen increase, had no symptoms. Two showed a simple irregularity, three no change, and one patient showed a lowering in the blood-pressure. There seemed to be no relation between the arterial tension and the low proteid diet during the eight-day period the diet continued. In some cases there was an irregularity, in some a rise, and in others a fall in the pressure; even though the nitrogen content of the blood was greatly diminished in every instance.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXIV, No. 273, pp. 327-362

17 *Experimental and Clinical Study of Value of Phenoltetrachlorphthalein as Test for Hepatic Function. L. G. Rowntree, S. H. Hurwitz and A. L. Bloomfield, Baltimore.
18 *Tests for Hepatic Function and Disease under Experimental Conditions. G. H. Whipple, T. C. Peightal and A. H. Clark, Baltimore.
19 *Test for Hepatic Injury: Blood Lipase. G. H. Whipple, Baltimore.

17. **Value of Phenoltetrachlorphthalein as Test for Hepatic Function.**—However, the constant findings in health, the decreased output in liver disease, the analogy between the effect of anemia and myocardial insufficiency on kidney and liver function as indicated by the sulphonephthalein and the tetrachlorphthalein tests, the results of the test in experimental liver lesions, and the established value of sulphonephthalein, based on the same principle as the test in kidney diseases, the authors believe, all indicate that the excretion of tetrachlorphthalein will be useful in the estimation of the functional capacity of the liver.

18. **Test for Hepatic Function.**—This test, the authors believe, promises much in the study of derangements of the hepatic parenchyma, physiologic and anatomic. Its great value is that it may give some quantitative values concerning liver injury, and for this reason, with accumulated experience, may be of value to the clinician.

19. **Test for Hepatic Injury.**—A study of the lipase of the blood, Whipple says, will show a definite rise above normal in practically all cases of eclampsia, liver injury with necrosis due to poisons, intoxications or infections, acute yellow atrophy, cholangitis and abscess of liver with considerable destruction of liver tissue. Cirrhosis of the liver may show a subnormal lipase; it may react to liver injury by a rise in blood lipase, but this point will require more study.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

November, VI, No. 5, pp. 71-90

20 Cooperative Health Work. C. H. Jones, Baltimore.
21 Non-Pasteurized Milk of Baltimore. J. H. Sewell, Baltimore.

Canadian Medical Association Journal, Toronto

November, III, No. 11, pp. 931-1026

22 Thomas Sydenham, the English Hippocrates (1624-1689). W. J. Fischer, Waterloo, Ontario.
23 Some Psychiatric Problems from General Practitioner's Standpoint. C. S. McVicar, Toronto.
24 *Relationship between Tumors Proper (Blastomas) and Hyperblastosis. J. G. Adami, Montreal.
25 Huntington's Chorea. G. A. Shannon, Sparta, Ontario.
26 Diseases of Thyroid Viewed from Standpoint of Surgeon. A. J. Ochsner, Chicago.

24. **Tumors Proper and Hyperblastosis.**—Whatever be the essential cause of the autonomous blastomas, Adami states, we have in these hyperblastoses a group of diffuse overgrowths which by analogy must be regarded as due to disturbances of metabolic equilibrium; which, further, in their simple nonmalignant stages at least, may possibly be combated eventually (certainly not to-day) along the lines of organotherapy. Every transition is observable in this series between the development of overgrowths of fully differentiated tissue, nonmalignant grades of anaplasia, and diffuse malignant infiltrative growths. This suggests strongly that the causation of malignancy is not to be sought for in the entry and action of external agencies, but in stimulation of the growth properties of specific tissues by changes in what Adami terms tissue equilibrium. The more we study, the more we become impressed by the fact that the number of conditions of hyperblastosis, whether simple or malignant, is relatively considerable, so considerable as to deserve separate consideration.

Colorado Medicine, Denver

November, X, No. 11, pp. 323-358

27 Bile-Tract Infections and Their Concomitant Correlated Diseases. L. L. McArthur, Chicago.
28 Roentgenoscopy in Gastro-Intestinal Disease. S. B. Childs, Denver.
29 Salvarsan in Treatment of Syphilis. W. C. Mitchell, Denver.

Indiana State Medical Association Journal, Fort Wayne

November, VI, No. 11, pp. 485-530

30 Roentgenoscopy of Gastric Cancer and Ulcer. R. D. Carman, Rochester, Minn.

Journal of Cutaneous Diseases, New York

November, XXXI, No. 11, pp. 799-974

31 Research Studies in Psoriasis. J. F. Shamberg, J. A. Kolmer, A. I. Ringer and G. W. Raiziss, Philadelphia.
32 Angioma Serpiginosum (Infective Angioma of Hutchinson), with Report of Very Extensive Case. F. Wise, New York.

Journal of Infectious Diseases, Chicago

November, XIII, No. 3, pp. 351-523

33 Value of "Abortin" as Diagnostic Agent for Infectious Abortion in Cattle. K. F. Meyer and J. B. Hardenbergh, Philadelphia.
34 *Production in Monkeys of Antibodies for Human Corpuscles. L. Hektoen, Chicago.
35 *Some Experimental Work on Use of Methylene-Blue and Allied Dyes in Treatment of Tuberculosis. L. M. DeWitt, Chicago.
36 *Effect of Meat and of Meat Extract Media on Fermentative Activity of Streptococci. J. Broadhurst, Ithaca, N. Y.
37 *Influence of Strychnin, Caffein, Chloral, Antipyrin, Cholesterol and Lactic Acid on Phagocytosis. A. Arkin, Chicago.
38 Relative Constancy of Ammonia Production by Certain Bacteria. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
39 *Case in Which Fusiform Bacillus Was Isolated from Blood-Stream. W. P. Larson and M. Barron, Minneapolis.
40 Fusiform Bacilli: Cultural Characteristics. C. Krumwiede and J. S. Pratt, New York.
41 *Differentiation of Fecal Streptococci by Their Fermentative Reactions in Carbohydrate Media. C. A. Fuller and V. A. Armstrong, Madison, Wis.
42 Spirochaeta Suis: Its Significance as Pathogenic Organism. W. E. King and G. L. Hoffmann, Detroit.
43 *Antigenic Properties of Constituents of Pneumonic Exudate. C. C. Hartman, Pittsburgh.
44 Lesions Produced by Bacillus Proteus. W. P. Larson and E. T. Bell, Minneapolis.

34. **Production in Monkeys of Antibodies for Human Corpuscles.**—In the course of certain experiments on measles and other diseases in the monkey the opportunity was used by Hektoen to follow the development in the monkey of antibodies to human blood-corpuscles. His observations were made on five monkeys (*Macacus rhesus*) injected with human blood. The forms of antibody action detected were agglutination and, in one case, opsonification. The agglutinative mixtures were in quantity 0.6 c.c.; of this, 0.2 c.c. was a 5 per cent. suspension of washed human corpuscles, the rest, monkey serum and salt solution. The opsonic mixtures were made in the same way with the addition of washed monkey leukocytes obtained from exudates produced by the injection of suspensions of aleuronat into the pleural cavity, the total quantity here also being 0.6 c.c. The smears were made after an incubation of 37 C. for one hour.

There was no phagocytosis in similar mixtures in which human leukocytes were substituted for leukocytes from the monkey. The heated serum of these monkeys in quantities of 0.2 c.c., complemented either with fresh monkey serum or with guinea-pig serum (0.0125 c.c.), did not cause any lysis of human corpuscles (0.2 c.c. of a 5 per cent. suspension). No tests for precipitin were made.

The results of these observations as interpreted by Hektoen indicate that in the monkey, injections of human blood stimulate the formation of agglutinin and opsonin for human corpuscles, these antibodies describing the same sort of a curve, though of small range, as other antibodies after the injection of a single dose of antigen. If we may judge from just one or two instances, the injection of monkeys with comparatively small quantities of human blood gives a larger response than injections of large quantities. Hektoen suggests that the fact that monkeys respond in this way to human blood might be taken advantage of in differentiating between human and monkey blood, but self-evidently this would be possible only under very special conditions, so that the method would seem to have an extremely limited practical significance.

35. **Methylene Blue in Tuberculosis.**—It was found by DeWitt that methylene blue will penetrate the tubercle, stain the living tubercle bacillus, and in some cases kill the bacillus *in vitro* and in others lessen its virulence. When added to the culture media, a relatively small percentage of methylene blue will inhibit the growth of the human tubercle bacillus. DeWitt says that methylene blue iodid is no less irritant than the chlorid and has less bactericidal power and no

greater therapeutic value. The new methylene blues used are various modifications of the methylene blue molecule and have in the main no advantage over methylene blue. New methylene blue GG, however, showed some effect in the one case in which it was used therapeutically and it, with other oxygen derivatives of methylene blue, will be given further tests.

Selenium blue and tellurium blue are new blue dyes in which the sulphur of the methylene blue molecule is replaced by selenium and by tellurium. They are weaker and less stable dyes than methylene blue and more toxic and less bactericidal than that dye. They penetrate the tubercle and are reduced in it and can be reoxidized; they stain the living tubercle bacillus, but more faintly than does methylene blue. In fact, they behave in all respects as weaker editions of methylene blue and have no advantage over it. Neither methylene blue nor any of the allied dyes tested by DeWitt had much therapeutic influence over experimental tuberculosis of the guinea-pig. While methylene blue seems for many reasons a favorable starting-point for tuberculosis chemotherapy, the author says that other modifications of it and probably many others must be tried before we can claim to have found a specific for this disease.

36. **Effect of Meat Media on Streptococci.**—Inasmuch as the fermentative activities of streptococci vary greatly with the use of meat or of meat extract in making the special media, Broadhurst suggests that all workers should state definitely whether meat or meat extract media were used throughout such investigations. Qualitative results, estimated with litmus as an indicator, are not comparable with quantitative ones, with phenolphthalein as an indicator, if meat extract is used in making the special media.

37. **Chemical Substances and Phagocytosis.**—From the results of experiments recorded in the literature and the results Arkin has obtained it appears that the effect of chemical substances on phagocytosis varies with their chemical constitution and their pharmacologic action. Alcohol, chloroform, ether, chloral, morphin and potassium cyanid depress phagocytosis *in vitro*. The substances all have an inhibitory effect on oxidation, to which their action on phagocytosis is in all probability due.

That oxidative processes play a rôle in phagocytosis is definitely shown by the fact that sodium iodoxybenzoate, which is an organic peroxid and owes its pharmacologic action as well as germicidal action to the presence of physiologically active oxygen attached to the iodin atom in its molecule, has a marked stimulating effect on the phagocytosis of streptococci and staphylococci *in vitro*. The action appears to be on the opsonin of the serum, which is rendered more active. Likewise strychnin and certain colloidal metals which have a stimulating effect on oxidative processes stimulate phagocytosis to a marked degree. The beneficial effects of improved oxygenation of the blood in infectious diseases may be due in part to the stimulating action on phagocytosis. Furthermore, substances which have a depressing effect on oxidations, as potassium cyanid, chloroform, ether, morphin, germicides, etc., have a distinct detrimental effect on phagocytosis as well as other immune reactions.

Caffein and the antipyretics which are more inert drugs have little, if any, action on phagocytosis. They have no known effect on oxidations in the body. The salts are mostly injurious to phagocytosis, to an extent depending on their toxicity, their ability to effect an exchange of ions with the salts in the cells, and their ability to combine with the opsonins. Those substances which depress phagocytosis *in vitro* have been found, when studied *in vivo*, to have a detrimental effect on the immunity reactions; e. g., the anesthetics, chloral, morphin, some salts and the antiseptics. The substances which have been found to stimulate phagocytosis at all are calcium, magnesium and mercuric chlorids; quinin; colloidal metals; peptone in dilute solution; nucleic acid; a few other leukostimulants such as staphylolysin in weak solution, potassium iodid, and perhaps alcohol; strychnin sulphate and nitrate; sodium iodoxybenzoate; salvarsan and other arsenic compounds; and possibly certain colloidal suspensions of cholesterol. It is interesting that all of these which have been studied *in vivo* have also had a favorable action, namely, salvarsan, calcium chlorid, quinin, colloidal metals (platinum, silver, gold, copper), mercuric chlorid in weak solutions, sodium iodoxybenzoate and cholesterol in colloidal suspension. Hence the action of a chemical substance on phagocytosis *in vitro* is a good index of the effect of that substance when used *in vivo*.

Arkin points out that the effects of an agent on the processes of immunity should be considered carefully when the use of that agent seems indicated in infectious diseases. The possibility of a combined therapy, consisting of the use of immune serums or vaccines together with certain drugs, suggests itself in the case of drugs which have themselves a stimulating effect on phagocytosis. The drugs may act as leukostimulants, or increase the production of antibodies, or combine with the antibodies to render them more active.

39. **Fusiform Bacillus Isolated from Blood-Stream.**—The authors claim that this is the first case on record in which the fusiform bacillus has been isolated from the blood-stream.

41. **Differentiation of Fecal Streptococci.**—From the results of the experiments cited by Fuller and Armstrong it appears that streptococci producing a high acidity in dextrose media are in general characteristic of human excreta. These strains which produce between 3.5 per cent. and 4.0 per cent. acidity in this medium are relatively abundant in human excreta. Dextrose fermenting strains are less abundant in the excreta of the horse and cow, and produce an acidity considerably less than that of the human strains.

Streptococci fermenting mannite are present in human feces in large numbers but are almost entirely lacking in the excreta of the horse and the cow. Strains fermenting dextrose, lactose and mannite (Andrewes and Horder's *S. fecalis*) comprise 65 per cent. of the cultures isolated from human stools, while only 1 per cent. of the strains from the horse and 2 per cent. of those from the cow are of this type. Streptococci fermenting lactose are comparatively rare in horse dung. Streptococci fermenting raffinose are abundant only in cow dung. Sixty-four per cent. of the strains isolated from this source ferment dextrose, lactose and raffinose (Andrewes and Horder's *S. salivarius*), 2 per cent. ferment lactose and raffinose, and 4 per cent. dextrose and raffinose. Streptococci of the salivarious type were not observed in human excreta, and comprised but 4 per cent. of the strains isolated from horse dung.

43. **Properties of Pneumonic Exudate.**—Hartman found that the addition of fatty substances and leukocytic extracts to fibrin does not increase its antigenic power. Leukocytic extracts, leukocyte residues, fatty substances from pneumonic exudates and from leukocytes (pus cells) cause non-specific binding of complement in the presence of some serums regardless of the reaction to the Noguchi test. Some specimens of pneumonic fibrin are themselves hemolytic. Fatty substances from pneumonic lungs and from leukocytes are hemolytic, but not anticomplementary in small quantities.

Normal fibrin and the non-hemolytic pneumonic fibrin, human serum, normal as well as pneumonic, inhibit the hemolysis induced by these fatty substances. The inhibitive power of the serum is contained in the globulin fraction precipitated by carbon dioxid. The four fractions of the fatty substances from pneumonic lungs and from leukocytes simulate those used as syphilitic antigen studied by Noguchi and Bronfenbrenner in their hemolytic, anticomplementary and antigenic powers. The leukocytic extracts vary to a considerable degree in their hemolytic, anticomplementary and antigenic properties. They do not serve as complement. The residues of leukocytes kept in glycerol are hemolytic and the hemolytic principles may be extracted by and demonstrated in alcohol. Extracts of leukocytes from patients with pneumonia are more strongly antigenic than those from pus-cells. The hemolytic substances associated with some pneumonia fibrin can be removed by alcohol, the alcoholic extract proving hemolytic. The anticomplementary power of normal fibrin is greatly increased by the addition of the fatty substances used in the experiments.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, V, No. 2, pp. 105-213

45 *Direct Application of Drugs to Temperature Centers. H. G. Barbour and E. S. Wing, New Haven, Conn.
46 *Paradoxical Action of Antipyrin in Partially and Completely Decerebrate Rabbits. H. G. Barbour and C. L. Deming, New Haven, Conn.
47 *Quantitative Studies on Gastro-Intestinal Absorption of Drugs. P. J. Hanzlik and R. J. Collins, Cleveland.

45. **Application of Drugs to Temperature Centers.** — The experiments described by Barbour and Wing show that the heat-regulating centers of the brain are directly susceptible to specific neuropharmacologic action. Besides the hyperthermiae which have previously been produced by stimulation of the region of the corpus striatum directly with puncture, electricity, cold and corrosive poisons, analogous stimulation with caffein and betatetrahydronaphtylamin can be demonstrated. Besides direct depression of this region by heat, one may obtain an analogous depression with chloral, antipyrin, quinin and under certain conditions epinephrin. Injected into the general circulation the minimal dose of chloral hydrate which causes a distinct temperature decrease is about 20 mg. per kilo animal. The chief factor appears to be muscular rest.

The minimal dose of antipyrin to cause a distinct fall in body temperature is about 60 mg. per kilo. Three hundred mg. is necessary to cause marked respiratory increase. Given into the region of the caudate nucleus (and lateral ventricle), chloral hydrate in doses as small as 6 mg. per kilo or over gives a distinct temperature decrease. Hyperpnea and vasodilation seem to be important factors. Antipyrin in doses of 20 mg. per kilo and more gives a definite fall in body temperature with hyperpnea which appears to be the chief factor. Peripheral vasodilation, if present after this method, is very transitory. Strong alcohol, 25 per cent. or 95 per cent., in the lateral ventricle raises the body temperature as corrosives do. Five per cent. alcohol appears to have the opposite effect. Quinin hydrochlorid injected into the general circulation in doses of about 2 mg. per kilo gave a slow temperature fall of not more than 0.25 degrees. Doses ranging from 0.6 to 5.5 mg. injected directly into the brain gave falls of from 0.6 to 1.1 degrees with either vasodilation or hyperpnea or both. Epinephrin introduced into the brain of rabbits on winter diet always gave a fall in temperature in doses 1.01 and 0.1 mg. per kilo. No external cause was apparent. Caffein in doses of 0.6 to 1.2 mg. per kilo intracerebrally raises the body temperature usually 0.5 degree or more. Vasoconstriction and dilation of the pupils are noted, and sometimes signs of marked excitement. Similar doses in the general circulation have little or no effect on the body temperature. Betatetrahydronaphtylamin in the general circulation caused entirely without symptoms a rise of 0.5 degree within three hours after a dose of 0.02 gram. The same dose in the brain of a somewhat larger rabbit caused in an hour a rise of 1.1 degree with all the characteristic symptoms of this drug followed by convulsions and death.

46. **Paradoxical Action of Antipyrin.** — Rabbits normally respond to antipyrin, in doses of 0.1 to 1 gm. (sometimes as low as 0.06 gm.) per kilo animal, by a fall in body temperature with marked peripheral vasodilation, and, where the dose is above 0.3 gm., with hyperpnea. Doses in the neighborhood of 1 gm. per kilo may cause fatal convulsions. The cerebrum and corpus striatum were removed by Barbour and Deming from eighteen rabbits. In nine of these cases, being those exhibiting as a rule the fewest anatomic complications, a subnormal body temperature (32.5 to 37.5 degrees the morning after operation) resulted. The remaining nine animals (besides two of the first mentioned nine, for the first four days after operation) behaved essentially like normal animals. The hypopyrexia animals showed signs of collapse, asymmetrical muscular disturbances, peripheral vasoconstriction and slow respiration. Their temperature condition was not due to cold, starvation or hemorrhage but to a disturbance of central heat regulation, probably seated chiefly in the corpus striatum.

When given 0.1 to 0.4 gm. (per kilo) antipyrin they showed a definite rise in temperature rather than a fall, and a conspicuous absence of the vasodilation usually seen after the drug, as well as of the hyperpnea which would be expected from the larger doses within this range. Muscle stiffness was in evidence, bordering, with the larger doses, on tonic and clonic convulsions. Animals completely decerebrated, including corpora striata and optic thalami, gave a temperature of 26.5 degrees to 32.5 degrees on the morning after operation. Antipyrin in doses below 0.33 gm. per kilo had no effect on these animals. Four-tenths gm. and above always gave a definite temperature rise. Neither vasodilation nor high respiratory rates were seen. Muscle stiffness or tetanic spasms were noted. The authors conclude that the reversed effect of antipyrin on body temperature in these cases is due to the normal heat-producing property of the drug. This property is brought into prominence by operative impairment of the heat-dissipating mechanism as well as of certain normal inhibitory influences which the higher centers exercise over the processes of heat production.

47. **Gastro-Intestinal Absorption of Drugs.** — Hanzlik and Collins found that the quantitative absorption of alcohol from the gastro-intestinal tracts of cats and dogs is practically identical. The absorption of alcohol from the stomach and small intestine of cats and dogs is about the same; from the colon about a fifth higher. The extent of the absorbing area does not markedly influence the intestinal absorption of alcohol. The absorption of alcohol is scarcely influenced by the concentration of the alcohol, although a 10 per cent. solution is absorbed somewhat better than 5, 50 and 95 per cent. solutions. The absorption of alcohol from the intestine of cats and dogs is practically arrested at the end of half an hour after injection. The inhibitory effect is of a local nature, since the presence of alcohol in one loop does not inhibit the absorption from adjoining loops. Under certain conditions inhibition may occur systemically. The intravenous injection of alcohol inhibits its absorption from the intestine. Inhibition of the absorption is not due to reexcretion. The percentage absorption of alcohol remains practically constant within wide variations of the systemic blood-pressure. Changes in the local circulation influence the intestinal absorption of alcohol. Injury to the intestinal mucosa lessens the absorption of alcohol.

The inhibition of the intestinal absorption of alcohol after intravenous injection is due to a slowing of the circulation in the intestine; no such change is demonstrable after local application of the alcohol. Such lipoidal substances as olive oil, cholesterin, lecithin, soap, bile salts and bile decreased the absorption of alcohol from the intestine of cats and dogs. The absorption of alcohol from the intestine after death averaged 17.6 per cent; from the stomach 27.1 per cent. Local "narcosis" of the intestine, and changes in the concentration of alcohol are not concerned in the inhibition of absorption. The authors conclude that the arrest of absorption is due to a retention or "binding" of a certain quantity of alcohol by the intestinal tissues.

Medical Record, New York

November 29, LXXXIV, No. 22, pp. 967-1012

48 Freudian Conception of Psychoneuroses. H. W. Frink, New York.
49 Scope and Technic of Psycho-Analysis. C. P. Oberndorf, New York.
50 Middle-Aged Woman: What Can be Done to Increase Her Efficiency? K. C. Mead, Middletown, Conn.
51 *Mechanism of Immunity in Experimental Cancer. I. Levin, New York.
52 Results of Treatment of Syphilis with Salvarsan and Neosalvarsan. S. H. Wadhams and E. C. Hill, U. S. Army.
53 Mortality Experience—Total Abstainers. R. I. Lounsberry, Binghamton, N. Y.
54 Benign Tumors of Female Breast; Report of Case of Adenofibroma. W. E. Hartshorn, New Haven, Conn.

51. **Immunity in Experimental Cancer.** — Levin's studies lead him to believe that Bashford's theory of a specific connective-tissue scaffolding has no general application in the explanation of cancer immunity. The conditions appear to be quite different when the tumor is inoculated directly into an organ instead of subcutaneously. In this case the first visible step is not the formation of a connective-tissue stroma, but

the inoculated cells immediately begin to proliferate and invade diffusely the normal tissue.

On the other hand, in an immune animal the tumor cells inoculated into an organ do not grow but die and are invaded by an extensive connective-tissue stroma like any other dead foreign body. Consequently, the immune organism does not lack the capacity to form connective-tissue scaffolding, and such an incapacity can no more be considered of a general importance in the elucidation of the phenomenon of immunity in experimental cancer than the lack of specific chemical food. Levin found that the inoculable tumors of the white mice and rats, as a general rule, grow just as well when inoculated into a parenchymatous organ as when inoculated subcutaneously. On the other hand, an animal resistant to a subcutaneous inoculation also resists an inoculation into an organ.

In his experiments with the Flexner-Jobling adenocarcinoma of the white rat, Levin noticed that while the tumor grows when inoculated subcutaneously or into any other organ in a large percentage of animals used, it does not grow when inoculated into a normal testicle. But when a testicle is treated previous to the inoculation either with an emulsion of Scharlach R in oil or an emulsion of ether in water, there takes place in the organ an inflammation accompanied with a proliferation of the intertubular connective-tissue, and then the inoculation of the same tumor into the organ becomes successful. The failure of the growth of the tumor in the normal testicle is not due to a general condition of the organism, but to a local action of the testicle on the tumor cells. The percentage of animals which are generally resistant to a subcutaneous inoculation is very small, and all the animals used for the inoculation into the testicle could not have been resistant to the growth of the tumor. Nor is it due to the mechanical influence of the tunica interfering with the expansion of the organ by the growing tumor, nor to the lack of specific food in the organism of the host. Investigations have shown that other inoculable tumors grow well in the testicle. The mechanism of this local resistance can be due only to an inhibitory action on the cells of this tumor of the cells of the tubules of the testicle. This investigation shows also that it is possible to render the same testicle artificially susceptible to the growth of the tumor.

In another more recent investigation Levin found again a striking proof of the possibility of a certain organ reacting differently toward the growth of an inoculable tumor than the rest of the organism. He repeated Uhlenhuth's experiments with the difference that the second inoculation was done not subcutaneously but into an organ. The results obtained coincided well with the results of Uhlenhuth. He then varied the experiments so that the second inoculation was not done in one organ, but in two organs—liver and spleen—simultaneously. The results obtained were quite unexpected. When the operation was radical and the subcutaneous tumor did not recur, then the secondary inoculation was not successful in any organ. On the other hand, when the operated subcutaneous tumor recurred then in a certain number of cases the secondary inoculation succeeded in both organs; in another series of experiments the secondary inoculation succeeded in one organ and failed in another. All these experiments show conclusively that the phenomena of immunity in experimental cancer cannot be explained by specific food relationship. There must exist a certain as yet unknown kind of an active inhibitory influence of the organism of the host on the cancer cells.

Missouri State Medical Association Journal, St. Louis

November, X, No. 5, pp. 155-190

55 Anxiety Neurosis and Its Treatment. G. W. Robinson, Kansas City.
56 Chemical Factors as Cause of Sterility in Female. G. Gellhorn, St. Louis.
57 Perinephritis. H. Jacobson, St. Louis.
58 Tuberculous Epididymitis with Report of Case with Treatment by Injections of Trypsin. H. M. Young, St. Louis.
59 Some Primitive Facts in Psychiatry. S. A. Johnson, Springfield.
60 Rectal Plug. R. H. Barnes, St. Louis.
61 Clinical Observations in Bacterial Therapy. J. D. Scba, Bland.

New York State Journal of Medicine, New York

November, XIII, No. 11, pp. 561-626

62 Present Obligations of Physicians Regarding Syphilis, Both as to Patients and Public. E. W. Ruggles, Rochester.
63 *Pain and Other Clinical Manifestations of Myocarditis. A. Lambert, New York.
64 Accidental Wounds in Hernia Surgery. W. B. De Garmo, New York.
65 Twenty-Four Cases of Tumor of Bladder and Conclusions as to Appropriate Methods of Treatment. P. M. Pilcher, Brooklyn.
66 Social Pediatrics. I. S. Wile, New York.
67 Human Serum Treatment for Hemorrhagic Diseases of New-Born Infants. J. E. Welch, New York.
68 Some Moot Questions in Medical Education and Students' Ideals. H. L. Elsner, Syracuse.
69 Indications for Labyrinth Operation. F. Whiting, New York.
70 Central Laceration of Perineum. A. G. Swift, Syracuse.
71 Importance of Ophthalmologic Examinations in Immigrants. M. Cohen, New York.
72 Certain Neglected Aspects of Problem of Infant Mortality. P. Van Ingen, New York.
73 *Cardiac and Arterial Decompensation—Prevention and Treatment. L. F. Bishop, New York.
74 Central Scotoma and Blind Spot Anomalies; Their Clinical Significance. P. Fridenberg, New York.
75 Dysmenorrhea. J. H. Carstens, Detroit.

63 and 73. Abstracted in THE JOURNAL, May 10, pp. 1483 and 1484.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November, XVII, No. 5, pp. 214-252

76 Reeducation of Disturbed Locomotion. A. Gordon, Philadelphia.
77 Solid Tumors of Submaxillary Gland. A. G. Brenizer, Charlotte, N. C.
78 Warning against Non-Scientific Diet Systems. M. J. Karpas, Washington, D. C.

Pennsylvania Medical Journal, Athens

November, XVII, No. 2, pp. 85-168

79 *Influence of Disease on Civilization. V. C. Vaughan, Ann Arbor, Mich.
80 Relation of Physician to Public Health Problems. J. D. Heard, Pittsburgh.
81 Tuberculosis Crusade. H. R. M. Landis, Philadelphia.
82 *Social Service and Physician, His Obligation and His Opportunity. J. C. Gittings, Philadelphia.
83 Practical Application of Social Service to Dispensary and Hospital Work. F. H. Klaer, Philadelphia.
84 Infant Mortality. C. A. Fife, Philadelphia.
85 *Care of Defectives. J. M. Murdock, Philadelphia.
86 Ludwig's Angina or Submaxillary Cellulitis with Extension to Floor of Mouth and Pharynx. T. T. Thomas, Philadelphia.
87 Treatment of Hernia. J. B. Carnett, Philadelphia.
88 Diagnostic Evidence of Gastric and Duodenal Ulcer as Shown by Roentgen Rays. G. E. Pfahler, Philadelphia.

79. **Influence of Disease on Civilization.**—Vaughan concludes as follows: In the future the training of the medical man must be developed largely with a view to his broader relations to the public. His proper function must be to prevent, rather than cure disease. The physician's duties are to become more and more largely official, in the sense that his services are to be rendered to the community, and not exclusively to the individual. Vaughan is quite sure that the time will come when people will go to the physician to find out whether they are really well or not, and not wait until they know they are ill. They will go for examination and advice, rather than for treatment. Ultimately the time will come when every one will be examined twice, or oftener, each year, and no two consecutive examinations will be made by the same physician. A record will be kept of each examination, and when the individual ultimately dies a careful autopsy will be held in every instance. At first these things will be voluntarily done by intelligent people and, later, others, seeing its advantage will adopt the rule. Finally, it will be compulsory with all, and will result in great good to the whole. The value of a custom of this kind in case of many of the infectious diseases, both to the individual and to the public, is evident.

82. **Social Service Applied to Dispensary and Hospital Work.**—Social service work in Klaer's opinion has come to stay. It has already regenerated outpatient departments so that this phase of hospital activity will soon take a position equal to that of the ward as a source of study or research, and a much more important place than the ward in the line of preventive medicine. It must, however, always rest on and be closely allied to the medical side of the work, and there must always be the closest cooperation between physicians and

social workers, if both are to work for the best interests of the patient. Accurate diagnosis of medical conditions is absolutely essential to effective social service work. The graduate nurse will find a large field in certain special lines of social service, but even in these lines she must acquire the social service point of view, either by study or experience. In many phases of the work the nurses' training may be regarded as hardly necessary.

Physicians cannot afford to overlook this great auxiliary to hospital or outpatient treatment either in large or small hospitals. It is the department which makes effective the physicians' ideas and instruction and will bring about cures, where, without its help, failure is bound to follow. It will, moreover, be the department through which hospital efficiency may be checked up, and thus set or raise the general standards of this work.

85. **Care of Defectives.**—Sterilization, Murdock says, is at best a partial remedy, as in all probability only those in the scale so low in mentality that the likelihood of parenthood is extremely improbable would be reached. Sterilization is not actually operative in one of the eight states that have passed sterilization laws. Sterilization would not be a safe and effective substitute for permanent segregation and control, and it is to this permanent segregation and control that we must look as the rational policy for controlling feeble-minded.

Tennessee State Medical Association Journal, Nashville

November, VI, No. 7, pp. 253-299

89 Cerebrospinal Meningitis: Symptoms and Diagnosis. A. E. Thayer, Mobile, Ala.
90 Epidemic of Cerebrospinal Meningitis in Institution. T. Weaver, Nashville.
91 *Bacteriology and Pathology of Cerebrospinal Meningitis. W. Litterer, Nashville.
92 Tonsillectomy and Tonsillar Hemorrhage. R. McKinney, Memphis.
93 Surgical Theories of Intestinal Stasis. R. A. Barr, Nashville.

91. Abstracted in THE JOURNAL April 19, p. 1249.

Vermont Medical Monthly, Burlington

November, XIX, No. 11, pp. 261-286

94 Progress in Medicine and Public Welfare. J. L. Heffron, Syracuse, N. Y.
95 Pituitrin. E. J. Melville, St. Albans.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

November, VII, No. 3, pp. 359-479

1 Development of Human Trypanosome in Gut of Stomoxys Nigra. J. W. S. Macfie.
2 Case of Loa Loa. W. Rogers.
3 Recent Experimental Research on Blackwater Fever. J. O. W. Barratt.
4 Fictitious Native Disease (Isigwebedhla). G. A. P. Ross.
5 Vomiting Sickness in Jamaica. H. Seidelin.

British Journal of Children's Diseases, London

November, X, No. 119, pp. 481-528

6 *Diphtheria Bacillus and Scarlatinal Infection. T. S. Higgins.
7 Epidemic of Specific Parotitis in Schoolchildren. A. Graham.
8 *Intestine as Pathway of Infection to Tubercle Bacillus, with Special Reference to Part Played by Diarrhea. L. Findlay.

6. **Scarlatinal Infection.**—The fact that Higgins isolated typical bacillus diphtheriae from the scarlatinally infectious "primary" cases in 25 per cent. of instances, but only in 7 per cent. of those cases of scarlet fever whose return from hospital had not produced return cases, and in 7 per cent. also among normal schoolchildren, he thinks, seems to show that the presence of this germ in the nose or throat of patients with scarlet fever is often associated with a prolongation of the period of scarlatinal infectiousness, and that the presence of the germ is indicative of an increased probability of such infectiousness.

8. **Intestine as Pathway of Infection.**—Findlay found that healthy rabbits can be infected by the ingestion of large amounts of bovine tubercle bacilli. The bacilli can pass through the apparently intact intestinal mucous membrane and reach the mesenteric glands within a period of six days; this, however, does not frequently happen. When infection occurs the intestine is invariably the seat of lesions, and thus tuberculosis of any origin, other than the intestine, is always a secondary infection when the bacilli have entered by the intestinal route. Catarrh of the intestine does not favor the passage of the tubercle bacillus through the wall, but allows of a more constant, and also of an earlier and more widespread infection of the bowel, and in this way facilitates dissemination. Healthy rabbits apparently cannot be infected by the ingestion of large amounts of the human tubercle bacillus. Rabbits just recovered from intestinal catarrh developed tuberculosis after the ingestion of human tubercle bacilli. With the human type of organism a local lesion, though always present, may be slight in comparison with the diseased foci in the mesenteric glands. It would seem that the best means of combating the spread of bovine infection in childhood—until tuberculosis of cattle is eradicated—is in the avoidance of everything likely to cause intestinal catarrh.

British Medical Journal, London

November 15, II, No. 2759, pp. 1269-1340

9 Degeneration of Neuron in Light of Recent Research. F. W. Mott.
10 Relation of Internal Secretions to Female Characteristics and Functions in Health and Disease. W. B. Bell.
11 Epidemic Cervical Adenitis. J. G. Sharp.
12 *Treatment of Gonorrheal Epididymitis by Bier's Method. A. C. Wilson.
13 Dysentery. S. R. Douglas.
14 Diagnosis and Treatment of Epidemic Bacillary Dysentery. J. G. Willmore.
15 Morphology of Intestinal Amebae of Man. C. M. Wenyon.
16 Causes of Invaliding from Tropics. G. B. Price.
17 Some Recent Observations on Sprue. J. Cantlie.
18 Phlebotomus Fever and Dengue. C. Birt.
19 Filariasis. G. C. Low.

12. **Treatment of Gonorrheal Epididymitis.**—In applying passive congestion to a testicle for the treatment of gonorrheal epididymitis, Wilson uses a strip of lint 1½ inches wide, a fine piece of rubber tubing and a pair of Spencer Wells forceps. The cord on the affected side is encircled just above the testicle by the strip of lint, which is continued round between the two testicles along the median raphe of the scrotum. Over the lint is applied the rubber tubing, which is tightened to the required extent and secured by artery forceps. (The required extent being such that no pain results after the application; instead, the patients describe a comfortable warming sensation with immediate relief of pain.) Pain after application implies that the tubing is too tightly applied, and suggests that it should be loosened. A few moments after adjustment the enclosed tissues assume a purple color resembling a ripe plum. The treatment is applied for an hour the first day, where possible, increasing daily up to eight hours. But in some very acute cases half an hour will be all that the patient can stand at first. Where practicable, however, Wilson says it will be found that the duration of disease is in inverse ratio to the length of daily application of treatment.

Glasgow Medical Journal

November, LXXX, No. 5, pp. 321-399

20 Byzantine Medicine: Finlayson Memorial Lecture. T. C. Allbutt.
21 Dilatation of Stomach. A. E. Maylard.
22 Treatment of Hemoptysis in Pulmonary Tuberculosis. J. W. Allan.

Indian Medical Gazette, Calcutta

October, XLVIII, No. 10, pp. 377-416

23 Some Uses of Modified Purin-Free Diet. A. Hooton.
24 Relapsing Fever in Chitral with Account of Successful Animal Inoculations. C. H. Smith and G. F. Graham.
25 Delayed Chloroform Poisoning. D. Munro and A. D. White.
26 Use of Scopolamin-Morphin and Atropin in Preventing Shock during Chloroform Anesthesia. J. J. F. Dunn.
27 Intestinal Obstruction and Scurvy. A. L. Sheppard.
28 Is Syphilis a Factor in Blackwater Fever? A. H. Napier.
29 Some Excisions of Thyroid, Performed at Sree Sree Sree Bir Hospital, Nepal (Khatmundu). S. C. Das Gupta.
30 Case of Myelocythemia. B. Das.
31 Use of Chionanthus Virginiana in Diseases of Liver. F. Roux.
32 Round Worms and Pregnancy. T. G. S. Row.

Journal of State Medicine, London

November, XXI, No. 11, pp. 641-704

33 Lighting in Industrial Occupations. L. Gaster.
34 Sporotrichosis. Gougerot.

35 Salvarsan and Neosalvarsan in Treatment of Syphilis. T. B. Shaw.
36 Cholera Elective Culture Medium. A. Dieudonne and K. Baerthlein.
37 Eye-Strain among Naval Ratings. W. A. Whitelegge.
38 School Planning, with Special Reference to Prevention of Consumption. S. Barwise.
39 Value of Autoclave in Sterilization of Anhydrous Oily Substances. H. Bullock.

Lancet, London

November 15, II, No. 4704, pp. 1367-1440

40 Degeneration of Neuron in Light of Recent Research. F. W. Mott.
41 Gonorrhea Phylacogen. L. W. Harrison.
42 Small Epidemic of Poliomyelitis. P. B. Roth.
43 Outbreak of Acute Anterior Poliomyelitis at West Kirby. G. Jubb.
44 Two Cases of Ascites Treated by Multiple Paracentesis and by Femoral Drainage. W. G. Nash.
45 *Polyvalent Tuberculin and Types of Temperature Reaction; New Technic. H. Sutherland.
46 Tubal Gestation Continuing to Sixth Month after Rupture at Sixth Week. R. Nairn.
47 *Diagnostic Value of Abderhalden's Method in Carcinoma. R. St. L. Brockman.
48 Five Cases of Porocephaliasis in Man from Southern Nigeria. J. W. S. Macfie and J. E. L. Johnston.

45. Polyvalent Tuberculin and Types of Temperature Reaction.—A rise of temperature, even of half a degree Fahrenheit above the mean, occurring within seventy-two hours of an injection of tuberculin, Sutherland maintains, is to be regarded as a reaction. A rise of temperature reaching its maximum within twenty-four hours of an injection is an immediate reaction, and may occur four hours after the injection. A rise of temperature reaching its maximum within forty-eight hours of the injection is a delayed reaction. A rise of temperature reaching its maximum within seventy-two hours of the injection is a progressive reaction. In their order of severity these types of temperature reaction are as follows: (a) immediate reaction with a fall by crisis—increase dose; (b) delayed reaction with a fall by crisis—repeat dose; (c) immediate reaction with a fall by lysis—reduce dose by one-fifth; (d) progressive reaction with a fall by crisis—reduce dose to one-tenth; (e) progressive reaction with a fall by lysis—stop tuberculin.

47. Abderhalden's Method in Carcinoma.—There is, in Brockman's opinion, sufficient evidence to show that the blood of persons suffering from carcinoma contains a substance absent in the blood of all others, and that this substance has a proteolytic action on the carcinoma tissue only. There are also several factors which point to its being of the nature of a ferment. If the serum from a patient is left to get stale it becomes inactive, but the addition of a trace of fresh human serum will activate it again. The reaction takes place best at 37 C. At room temperature the reaction does not occur, while heating the serum to 55 C. for five minutes inactivates it beyond recall. If, then, as is maintained, this substance is of a protective nature, it would be natural to expect to find it present in larger quantities in patients who were in good general health. The results of these tests point strongly to such being the case. Brockman has noticed throughout the whole series that a patient with a growth of the tongue or of the breast who is in good general condition will give an intensity of coloration in twelve hours which a patient in a low state of health would fail to give in twenty-four hours.

Annales de l'Institut Pasteur, Paris

October, XXVII, No. 10, pp. 797-892

49 Vaccination with Sensitized Virus against Sheep-Pox. J. Bridré and A. Boquet.
50 Undulant (Malta) Fever in Algiers in 1912. J. Séjournant.
51 Acute Epidemic Poliomyelitis. II. (Etat refractaire et propriétés microbicides du sérum.) C. Kling and C. Levaditi. See editorial p. 1904.
52 Assimilation of Saccharose by Bacteria of the B. Subtilis Group. (Fermentation butylèneglycolique.) M. Lemoigne.
53 Action of Bile on Pneumococci. C. Truche, L. Cotoni and A. Raphael.

Archives Générales de Chirurgie, Paris

October, VII, No. 10, pp. 1153-1280

54 *Pain and the Surgeon. (La douleur en chirurgie.) L. Picqué.
55 Dislocation of the Wrist. (Les luxations dorsales de l'extrémité supérieure des métacarpiens dans leurs articulations avec le carpe.) M. Bergasse and M. Guilmain.
56 Spontaneous Dislocation in Joint Disease. (Les luxations spontanées vraies dans la tuberculose articulaire et dans les arthrites en général.) P. Bertein.

54. Pain from the Surgical Standpoint.—Picqué comments on the comparatively slight attention paid to pain by the surgeon, urging that study of the pain is liable to prove a useful guide in various ways. He states that he knows of only one article on pain written by a surgeon in recent years. Richet, the physiologist, to whom a Nobel prize has been awarded, declares that the capacity for feeling pain is more developed in proportion to the development of the mind, and he regards pain as the fundamental element in human progress. Picqué defines pain as generally merely the special perception of some peripheral organic trouble. As a rule, the comparatively insignificant lesions are the ones that induce the severest pains. By comparing the subjective with the objective findings it is possible to determine to what extent the mind participates in causing the pain. Championnière has warned that the surgeon in his examination may create pain for the first time, and that once thus inaugurated, the pain may persist indefinitely. The questions of the physician are liable likewise to call pain into existence or first cause a realization of existing slight pain.

Archives de Médecine des Enfants, Paris

November, XVI, No. 11, pp. 801-880

57 *Uremia in Children. (Signification clinique de l'azotémie chez les enfants.) P. Nobécourt.
58 Radioscopy of Tracheobronchial Lymph-Nodes in Children. D'Oelsnitz and Paschetta.
59 The Intradermal Reaction to Injection of Serum. (La réaction sérique intracutanée.) J. Michiels.

57. Uremia in Children.—Nobécourt declares that the pediatrist should apply in his practice the various means of investigation used for adults but he should beware of applying to a child the conclusions drawn from the responses in adults. Uremia, for instance, in older children as with adults, is a consequence of nephritis. But the highest proportions of urea in children in his experience were found with acute and transient nephritis. The prognosis is less favorable when the urea is mild but persisting, this chronic character suggesting a profound and progressive lesion in the kidney. In infants and young children nephritis is less often responsible for the uremia; it appears in acute gastro-intestinal disturbance and bronchopneumonia. High azotemia, unless briefly transient, seems to be the chemical substratum, he says, of athrepsia. The discovery of urea persisting in the cerebrospinal fluid, even in a low percentage, indicates a grave prognosis. Urea up to 0.5, 0.7, 1 or 3 gm. was found in the cerebrospinal fluid of eleven out of eighteen infants with athrepsia; the proportion varied, but the findings were constantly positive till death. Necropsy revealed no signs of tuberculosis or syphilis, while in another series of tuberculous or syphilitic infants, some with pneumonia or digestive trouble, the urea content was constantly normal or below. The athrepsic babies present the uremic syndrome similar to that in adults: gastro-intestinal disturbances, lack of appetite, progressive emaciation and torpor. Uremia in infants may be accompanied by symptoms on the part of the nervous system suggesting meningitis but differing in that the gaze is not so fixed and there is myosis instead of the mydriasis of meningitis. A negative tuberculin reaction also speaks against meningitis.

Bulletin de l'Académie de Médecine, Paris

October 14, LXXVII, No. 31, pp. 209-222

60 *Training the Muscles of the Ear in Treatment of Deafness. (Du traitement de la surdité par la gymnastique auriculaire et les exercises acoustiques.) M. Fernet.

October 21, No. 32, pp. 223-283

61 Sexual Perversions a Form of Disease. (Inversion sexuelle et pathologie mental.) P. Ladame and Magnan.

October 28, No. 33, pp. 284-323

62 Epileptic Myoclonus. Four Cases. Oddo and Corsy.

60. Warding Off and Treatment of Deafness by Exercising the Muscles of the Ear.—Fernet ascribes the benefit from exercising an organ to the consequent improved circulation and better nourishment, enabling it to throw off traces of pre-

ceding disease, and to the better adaptation to its function progressively acquired by practice, but, above all, to the training of the auxiliary organs which sustain and reenforce the lagging organ.

Functional reeducation based on these principles has been successfully applied in treatment of the infirmities in chronic rheumatism and tabes, but the prospects are still more promising in training the hearing in case of encroaching deafness in the elderly or after otitis media. The muscles of the outer ear and middle ear and of the eustachian tube are generally supposed to be beyond the control of the will, but children can frequently voluntarily move the ears and part of the scalp and some become quite expert at it. Fernet thinks that this faculty is lost simply from lack of exercise in adults, but if it can be acquired anew the muscles of the internal ear, which probably share in the movement of the outer muscles, will be effectually exercised. All the above muscles are innervated by the facialis nerve, which explains their concerted action. Even if only one of the above muscles can be exercised, the benefit will extend throughout the whole group of muscles as others contract with it. When only one ear is deaf, the individual generally uses the good ear exclusively, leaving the deaf ear to atrophy and the spark of hearing left soon dies out; if the ear were systematically trained to listen the spark might be kept alive and grow brighter.

The exercises of the muscles may be done in three series, those of the face, then the scalp and auricle, and lastly, those of the eustachian tube. The first series is mainly by grimaces of the face, contracting in turn the muscles of the lips, nostrils, eyelids, doing the exercises slowly and repeating them, aiming to reach the ear. Medical men knowing the anatomy of the parts can train their muscles very effectually in this way; others need a monitor to show them how. With a little training one can learn to move the scalp; especially if it is loosened with a little massage beforehand. The frontal and then the occipital muscles can be contracted alternately, forcing the top of the scalp back and forth, and then the muscles above, behind and in front of the ear. A series of these exercises gives one an unmistakable impression that the depths of the ear are roused from their torpor and that the sound waves have better access. The muscles of the eustachian tube are exercised by a kind of swallowing movement with simultaneous contraction of the muscles of the upper pharynx and velum. A deep inspiration followed by an abrupt expiration through the nose ventilates the tube, and other exercises aid in training the muscles of the tube as they move in concert with adjacent muscles.

The hearing proper should be exercised and trained. Listen with the deaf ear, the ear that hears most defectively; listen the harder with it because it is sliding down into deafness. Fernet's methods have proved very useful in many cases, especially in those in which the trouble in hearing is connected with transmission of sound waves by the middle ear—the most common cause of deafness. Physicians particularly need good hearing, and instead of accepting deafness with the fatalism of the oriental, they should rouse up and fight it.

Presse Médicale, Paris

November 5, XXI, No. 90, pp. 897-904

63 Diagnosis from the Stool of Ulcerations in the Gastro-Intestinal Tract. R. Golffon.
64 The Antigen in the Wassermann Reaction. A. Desmoulière.

Revue de Gynécologie, Paris

XXI, No. 4, pp. 257-352

65 *Pathologic Anatomy of Tumors in the Breast. A. Gosset and P. Masson.
66 Diffuse Adenoma of the Cornua of the Uterus. J. Caraven and P. Merle.

65. **Mammary Tumors.**—Gosset and Masson state that cystic disease of the breast unquestionably predisposes to cancer. Microscopic examination in cystic disease of the breast may reveal the cancer in its earliest incipiency and thus permit a truly radical cure. Among the seventy-five cases reported and compared, cancer had developed in the cystic affection in twenty-nine cases of cystic disease of the breast. Only three were found free from cancerous degeneration. The tumor was an epithelioma in fifty-two of the seventy-five cases, including twenty-five with preceding cystic disease, and three with tuberculosis.

Archiv für klinische Chirurgie, Berlin

CII, No. 4, pp. 861-1105. Last indexed Dec. 6, p. 2109

67 *Operations on the Brain. (Zur Gehirnchirurgie.) A. Stieda.
68 *Plastic Operation on the Esophagus. A. Stieda.
69 Experiences with Rosenbach's Tuberculin in Surgical Tuberculosis. R. Lichtenstein.
70 Appendicectomy; 308 Cases. P. Zander.
71 Experiences with Pantopon-Scopolamin General Anesthesia. M. Nentwig.
72 Patent Omphalomesenteric Duct. K. E. Veit.
73 Etiology of Caput Obstipum. K. E. Veit.
74 Tuberculosis of the Bursas in the Hip. (Tuberkulose der Schleimbeutel der Hüftgegend.) J. Becker.
75 *Invagination of the Intestine in Children. J. Becker.
76 Traumatic Dislocation of the Hip Joint in Children. E. Bochnke.
77 Traumatic Central Dislocation of Head of Femur. W. H. Loepp.

67. **Surgery of the Brain.**—Stieda describes in detail the case of a girl of 5 from whose brain a tumor as large as a hen's egg and weighing 125 gm. was removed over a year ago. The symptoms improved remarkably or subsided entirely. This case and several others he reports teach the necessity for operating for brain tumors at two sittings and under local anesthesia, never tamponing or draining; if a plastic operation is necessary, fascia from the thigh is the best material for the purpose. Severe bleeding can be arrested easily and promptly by pressing with scraps of muscle. The case of a young woman is described who has very little disturbances of any kind to show at present, eight years after a partial operation on a glioma in the left central lobe near the center for the arm. As the growth was not circumscribed, it could not be entirely removed; a piece 2x3 cm. was cut out. The tumor has evidently retrogressed during the eight years since to a remarkable extent.

68. **Plastic Operation on the Esophagus.**—The young woman in the case described drank sulphuric acid with suicidal intent, and Stieda gives an illustrated description of the technic with which he later provided her with a new esophagus, made from a skin flap and connected with the stomach by a stout rubber tube, pushed up tight into the lower end of the new esophagus.

75. **Invagination of the Intestine in Children.**—Becker reports twelve cases he has encountered in the last ten years, all chronic but four. In the four acute cases the children were from 5 months to nearly 4 years old and three died. The only child that recovered was the only one treated by rectal injections alone. In the eight chronic cases, that is, with invagination for more than five days, five of the children died. His experience has convinced him that the proliferation of bacteria and production of toxins in the invaginated intestine are what reduces the resisting powers to such a low ebb. The aim in treatment should be to get rid of this source of intoxication as soon as possible, and this is best accomplished, he thinks, by resection of the invaginated portion, followed by entero-anastomosis. The earlier the operation is done the better the results with children over a year old.

Beiträge zur klinischen Chirurgie, Tübingen

September, LXXXVI, Nos. 2-3, pp. 265-555

78 Operative Treatment for Disturbance of Vision with Steeple-Skull. (Grundlagen und Methoden der operativen Behandlung der Sehstörungen beim Turmschädel.) H. Schloffer.
79 Advantages of Ligation of Ileocolic Vein with Mesenteric Pyemia after Appendicitis; Eight Cases. H. Braun.
80 Solitary, Non-Parasitic Cyst in Liver; Thirtieth Case on Record. E. Sonntag.
81 *Stoffel's Operation for Spastic Paralysis. E. Bundschuh.
82 Suture of Stab-Wound of Heart; Two Cases. (Stichverletzung des Herzens durch Herznaht geheilt.) A. Nast-Kolb.
83 *To Avoid Disturbances in Circulation after Ligation of Iliac Artery. (Zirkulationsstörungen an der unteren Extremität nach Unterbindung der Arteria iliaca communis und der Arteria iliaca externa.) F. Strauss.
84 *Spiral Incision in Treatment of Varices or Leg Ulcers. Five Cases. F. Rauch.
85 Roentgen Stereoscopy in Localization of Foreign Bodies. (Lagebestimmung von Fremdkörpern mit Hilfe des Stereo Röntgenverfahrens.) L. v. Holst.

86 End-to-End Suture of Vessels by Technic that Enlarges the Lumen. (Eine das Lumen der Gefässanastomose erweiternde Methode der Venennaht.) N. Dobrowolskaja.
87 Changes in Blood and Blood-Producing Organs after Amputations and Exarticulations; Experimental Research. W. Schaack.
88 *Thymus and Thyroid in their Reciprocal Relation to Exophthalmic Goiter. (Thymus und Schilddrüse in ihren wechselseitigen Beziehungen zum Morbus Basedowii.) W. Capelle and R. Bayer.

81. Operation on Peripheral Motor Nerves for Spastic Paralysis.—Bundschuh has applied in three cases Stoffel's method of weakening the contracted muscle by severing certain of its nerve fibers. The stretch innervated by these fibers ceases to be contracted after they have been divided, and flaccid paralysis of this stretch takes the place of the former contracture. The muscle by this means loses its excessive nervous energy and the normal balance between it and the antagonist muscle is restored. Bundschuh's patients were 3 and 12 years old, with Little's disease or paralysis from early encephalitis. In two of the children the results are highly satisfactory but in the other the triceps surae was evidently not weakened quite enough, and there is still some contracture of the foot which it is proposed to correct later. He emphasizes that the after-care must be regarded as of equal importance with the operation. Intelligent cooperation on the part of the family is indispensable.

83. Ligation of Iliac Artery.—Strauss relates a case in which gangrene developed in the leg after ligation of the external iliac artery under aseptic conditions and with no complications; the artery had required ligating on account of its tearing from traction of adhesions during an operation for inguinal hernia in a man of 70. He says that this occurs so rarely after ligation of the external iliac, in comparison with ligation of the common iliac artery, that the former deserves the preference in all possible cases. The ability to bear ligation without gangrene depends on the functional capacity of the heart, and this should be carefully estimated beforehand. Korotkow's test has proved very useful for this when considering an operation for aneurysm: He compresses the artery above the aneurysm and determines the blood-pressure with the manometer applied below, to the toes, for instance. This permits estimation of the force of the collateral circulation and thus warns of a predisposition to gangrene in case it is found low. If compression is applied above and below the lesion, thus excluding this stretch from the circulation, the blood-pressure at the toes will be approximately what it would be after the stretch of artery had been resected.

84. Spiral Incision for Varices.—Rauch says that the results in two of his five cases were most excellent; there has been no recurrence during the years since of the extensive varices and torpid ulcers with elephantiasic changes in the skin. Both these patients had been previously treated by other measures, including operative, but without result, and both had their earning capacity restored in two and a half and three and a half months, by the spiral incision. In the other cases the complete procedure could not be applied and the results were less perfect, but full earning capacity was regained in seven to twelve weeks. The operation is severe and necessarily accompanied by considerable loss of blood so that it is indicated only in the extremely rebellious cases of varicose enlargement of veins. Rauch cites in conclusion the surprisingly favorable results found by Geinitz on a recent reexamination of six patients on whom he had performed the spiral operation nearly two years before.

88. The Thymus and Thyroid in Their Reciprocal Relation to Exophthalmic Goiter.—This long article is accompanied by six large charts showing the minute results of the investigations reported, besides five pages of schematic representation of conditions in a number of clinical cases. The data presented seem to show that the thymus and thyroid in exophthalmic goiter work in harmony to a certain extent, but in other points they work against each other. The writers, Capelle and Bayer, were the first to call attention to the possibility that a thymectomy may have as favorable an influence as thyroidectomy in certain cases of exophthalmic goiter. They report a new case of this kind: A woman of 27 developed the symptoms of Basedow's disease in a severe form; palpitations, tremor, diarrhea with vomiting, loss of 24 pounds in three months, the hair falling out, the menses suspended, and the neck growing a very little larger. There was only slight tendency to protrusion of the eyeballs, but they had a peculiar stare. The thyroid showed remarkably slight changes and the severity of the clinical symptoms in comparison with the almost entirely normal aspect of the thyroid suggested that the thymus might be responsible for the syndrome. Roentgenoscopy and palpation rendered a persisting thymus almost certain, and it was removed. Prompt improvement followed; the woman gained 6 pounds in three weeks, menstruation became normal, the pulse dropped from 130 to 95, and the condition now, five months later, may be regarded as practically normal. The thymus was not materially enlarged but showed some hyperplasia of the medulla, less of the cortex, while the content in eosinophil cells was high.

The tables of the metabolic findings in a number of typical cases confirm the assumption that the thymus and thyroid may both be incriminated in Basedow's disease, and that the symptoms vary as one or the other predominates in the production of symptoms. The data presented seem to show that the predominance of symptoms for which the sympathetic nervous system is responsible points to the thyroid as chiefly to blame, while the predominance of vagus symptoms points to the thymus. In dubious cases the simpler operation, thyroidectomy, should be done, but if symptoms persist the thymus should be resected also. In a case with much exophthalmos, much excited heart action, with tendency to fluctuations of temperature and trophic disturbances, the trouble can be referred to the thyroid. On the other hand, in cases with only slight protrusion of the eyeballs, with pronounced subjective heart disturbances but the pulse not altered to correspond, with sweats, diarrhea and dyspepsia dominating the clinical picture, the blood modified according to the Kocher type, and there is an area of dulness over the thymus region and a tendency to myasthenia—this clinical picture incriminates the thymus, and thymectomy should be done first if the thyroid shows no changes proportional to the severity of the Basedow picture. They have operated in three cases on these presumptions, and two of the patients were practically cured; the third died from cardiac paralysis half an hour after the operation. They report further trials of organ therapy, thymus and ovary tissue, but their experiences have been too few for conclusive judgment.

They report further some experiments with injection of epinephrin in Basedow patients to determine whether the sympathetic or vagus nerves were predominantly involved; the findings are compared with those in healthy persons. They gave a subcutaneous injection of 0.001 gm. epinephrin and repeated in half an hour. A response with profuse sweating, palpitation and tremor was always obtained in the severe cases, as also polyuria and glycosuria. When the sweating, polyuria and glycosuria are extremely pronounced, the sympathetic system is mainly involved. The blood changes also under the epinephrin. The condition returns to normal more promptly in the sympathetic system cases; the lack of repair seems to characterize the vagus cases.

Berliner klinische Wochenschrift

November 4, I., No. 44, pp. 2025-2072

89 *Tumors in the Cerebellum. (Erfahrungen bei Operationen von Kleinhirngeschwülsten.) H. Oppenheim and M. Borchardt.
90 *Deformity of Femur after Fracture. (Einige seltene Erkrankungen des oberen Femurdrittels.) G. Axhausen.
91 Experimental Syphilis. (Weitere Mitteilungen über Ergebnisse der experimentellen Syphilisforschung.) P. Uhlenhuth and P. Mulzer.
92 *Exanthematous Typhus. (Fleckfieber.) C. Hegler and S. v. Prowazek.
93 Tube-Casts in Urine. (Cylinder and Cylindroide.) C. Posner.
94 *Determination of Iodin in the Urine. (Nachweis von Jod im Harn.) F. Lesser.
95 Spastic Contracture from Phylogenetic Standpoint. A. Langgaard.
96 *By-Effects of Arsenic and Salvarsan. (Nachtrag zu meinen Arbeiten über die Nebenwirkungen des Salvarsans.) R. Obermiller.

89. **Cerebellum Tumors.**—Oppenheim and Borchardt recently demonstrated a robust young man of 22 in apparently good health, except that vision in one eye is reduced somewhat and when the eyes are shut there is slight staggering. Fifteen months before they had removed a fibrosarcoma from the vermiform process of the cerebellum; it was not circumscribed and considerable portions of the process had to be cut out. The part left was vigorously cauterized. Two previous attempts during the preceding six weeks had had to be interrupted on account of collapse, and after the main operation artificial respiration had to be kept up with brief intervals through the day and next night. The respiration stopped at times completely and then alternated with Cheyne-Stokes with persisting tracheal râles; the pulse kept good. After twenty-four hours the respiration proceeded naturally once more but then the heart repeatedly seemed to be failing. This was successfully combatted with camphor and caffein. The two-hour operation was done under local anesthesia, with a few whiffs of ether at times when the patient complained of discomfort from the position of his head. An equally favorable outcome is reported in the case of a child of 7 who had a tumor the size of a walnut removed from the right hemisphere of the cerebellum. It had already entailed total amaurosis. Eighteen months after the operation the girl is not only in perfect general health but vision has returned so she can count fingers at half a meter. This is the only case of restoration of vision which Oppenheim has encountered.

90. **Acquired Deformity of the Upper Femur.**—Axhausen gives an illustrated description of some cases of tumefaction in the upper femur of various origins. The trouble was a fibrous ostitis in some cases; it was restricted entirely to this one site, and was of several years' standing, up to twenty years in one case. Operative measures seem indicated in such cases and are generally required by a spontaneous fracture sooner or later. The Wassermann will exclude syphilis if there is an unfounded suspicion that the trouble is a syphilitic bone lesion. In another case the trouble in the upper end of the femur in a woman of 71 proved to be a circumscribed focus of severe, pure osteomalacia; no other bones were affected. This is the first instance on record, he thinks, of an extremely severe form of osteomalacia restricted to one bone. In two other cases the large tumor had developed after a fracture but it simulated malignant disease; the patients are both living, several years since the examination. This excludes cancer; the trouble is probably merely excessive callus production at the site of an old fracture; both patients are tabetic.

92. **Exanthematous Typhus.**—Few persons nowadays have had such experience with this disease as Hegler and Prowazek, who studied it in four immigrants at Hamburg and then in hundreds of cases in Servia during the Balkan War. The blood was examined with special care and certain changes were found which are apparently typical; they were never found in the blood of typhoid or measles patients. The disease does not seem to be transmitted by direct contact but all their experiences confirmed transmission by the louse. Inunctions with eucalyptus oil regularly before entering the typhus hospital protected them against the disease, aided by the fact that the patients had all been freed from vermin on entering the hospital.

94. **Simple Test for Iodin in Urine or Saliva.**—Lesser stirs with the end of a match a little calomel into a few drops of the urine on a slide or card. If it contains iodin, the calomel turns bright yellow. Iodin in the saliva is shown up in the same way if the patient spits on a little calomel. This calomel test, he says, is extremely delicate and reliable. Another way to reveal the presence of iodin is by touching the tongue with a silver nitrate stick. The white mark left by the caustic is not white but yellow in case the individual has been taking iodin.

96. **By-Effects of Salvarsan.**—Obermiller ridicules the attempts to explain the mishaps after salvarsan by attributing them to anything except the toxic action of arsenic which salvarsan shares with all other preparations of arsenic.

Deutsche medizinische Wochenschrift, Berlin

November 6, XXXIX, No. 45, pp. 2177-2232

97 Cosmetic Dermatology. III. (Pigmentanomalien: Ephelides, Lentigines, Chloasma, Vitiligo.) E. Kromayer.
98 Early Stage of Atrophic Alopecia. (Pseudopelade Brocq.) W. H. Dreuw.
99 *Hyperemia Treatment of Inflammatory Processes in the Urinary Passages. E. R. W. Frank.
100 Functions of the Prostate. J. Jacobsohn.
101 *Indirect Radiotherapy for Enlarged Prostate. J. Jacobsohn.
102 Calcium and Magnesia in Therapeutics; Experimental Research. M. Kochmann.
103 Pneumonia and Cardiac Defects. O. Keller.
104 Bile Culture Medium for Diphtheria Bacilli. (Erfahrungen mit dem Galle-Diphtherienährboden nach v. Drigalski und Bierast.) F. C. R. Schulz.
105 Treatment of Trachoma. (Zur Behandlung der schweren Körnerkrankheit.) Rau.
106 Blood-Findings in Exanthematous Typhus. (Hämatologische Diagnose des Flecktyphus.) M. Rabinowitsch.
107 Child Labor. (Die hygienische Seite der gewerblichen Kinderarbeit.) W. Hanauer.

99. **Hyperemia in Treatment of Disease in the Urinary Passages.**—Frank refers in particular to inflammation with infiltration, and says that nothing loosens up the tissues and promotes absorption so effectually as the application of local heat. For several years he has been working to perfect appliances to induce local hyperemia, and here gives an illustrated description of a number of them. They are connected with an ordinary electric-light wire with a thermometer to regulate the heat. Patients bear without discomfort a temperature of 55 C. in the urethra, and the catheter can be left in place at this temperature for twenty-five or thirty minutes. The relief of pain is marked, and he states that under all circumstances a warm catheter can be introduced much easier than one at ordinary temperature. He has found that some patients otherwise requiring local anesthesia before the catheter can be introduced readily bear the introduction of a catheter heated to 30 or 40 C., and the dilatation can be carried much farther with heated catheters. He was one of the first to recognize the advantages of Bier's hyperemic treatment for urologic practice, and five years' experience has only confirmed its importance. The appliances described adapt it for various organs, and the pathologic changes retrogress much more rapidly, he declares, more certainly and more completely than is possible otherwise. He adds that Bier's hyperemic treatment registers its finest successes in treatment of chronic inflammatory processes in the urinary and sexual organs, reducing the pain, destroying bacteria or attenuating them, while promoting absorption and resolution and better nourishment of the parts.

101. **Enlargement of the Prostate.**—Jacobsohn argues that the prostate and seminal vesicles are cooperative organs, and he believes that it is possible by influencing the seminal vesicles to act indirectly on the prostate. He sought to accomplish this by radio-active treatment of the seminal vesicles, and reports three cases in detail in which the moderately enlarged prostate subsided enough, in two, to permit practically normal bladder functioning. The prostate materially retrogressed in the other case after ten exposures, but the bladder function is not improved as the disturbances were of many years' standing in a decrepit man of 78. Jacobsohn thinks that this indirect radiotherapy of hypertrophy of the prostate has a promising future and a logical basis in the physiologic connection between the accessory sexual glands.

Medizinische Klinik, Berlin

November 2, IX, No. 44, pp. 1793-1836

108 *Intestinal Auto-Intoxication and Its Treatment. E. Roos.
109 Effect of Papaverin on the Smooth Muscles. (Ueber die Papaverinreaktion der glatten Muskeln, ihre diagnostische und therapeutische Verwertung.) J. Pal.
110 *Importance of the Abderhalden Serodiagnosis for Internal Medicine. J. Bauer.
111 Reaction to Intravenous Injection of Arthigon in Gonococcus Infection. R. Frühwald.
112 *Perforation of Gastric Ulcer Closed by Adjoining Organ. (Zur Frage der gedeckten Magenperforation.) J. Schnitzler.
113 Influence of Age on Development of Cancer. A. Theilhaber.
114 *Radial Paresis from Lead Poisoning. H. Zondek.
115 Advantages of Giving Bromids in Capsules that Pass Through the Stomach Unmodified. (Zweckmässige Form der Bromdarreichung.) P. Jödicke.
116 Sugar Content of Transudates and Exudates. C. Hegler and O. Schumm.

108. **Intestinal Auto-Intoxication.**—Roos regards the toxins produced by bacteria in the intestines as the ones responsible for the symptoms of what we call intestinal auto-intoxication. He says that Strassburger found that a fifth of the dry substance of the stool is often composed of bacteria, and in pathologic conditions without much diarrhea the amount may be more than twice this. Roos used lactic acid bacilli in treatment of rebellious constipation before Metchnikoff published his works on the subject, and he states that the benefit from this has long been known empirically; acid fruits, vegetables or milk containing lactic acid and lactic bacilli have been found particularly wholesome for ages in all parts of the world. Peoples that consume much milk are generally exceptionally robust and long-lived. Milk becomes acid during lactic acid fermentation, while meat under the same condition putrefies; sugar protects organic substances against putrefaction. White cheese has a marked effect in reducing putrefaction in the intestine; Baumann presented evidence that the ethereal sulphates—products of intestinal putrefaction—are materially reduced when white cheese is eaten. Pure casein does not have this property. The white cheese probably takes the milk sugar with it into the lower parts of the bowel. Roos remarks that Metchnikoff's new treatment with the peptolytic glycobacterium, to be taken with considerable potato, forms a new method of treatment which is closely analogous to a dish very popular in Roos' country, namely, boiled potatoes with sour milk-sauce (*gesottene Kartoffeln mit Saucrmilch*). Here again, he exclaims, as so often happens, observation and experience, empiricism, have long preceded the scientific explanation of the facts observed.

Abnormal bacterial transformations in the intestines may be combated by regulation of the diet, but it must not be forgotten that the putrefaction may occur not so much in the food particles in the intestine as in the serous fluid poured out from the intestinal walls, which is particularly liable to putrefy easily. Dieting would not affect this; astringents should be given the preference, but the main reliance should be on copious injections, washing out from the bowel the putrefying substances. Diastatic ferments may be useful with fermentation dyspepsia and insufficiency of ferment production. Ordinary sour milk is useful also, but yoghurt is more effectual as the lactic acid bacilli in the latter are more resistant and produce more of the lactic acid. In conclusion he remarks that sourkraut may owe its reputation for wholesomeness to the lactic acid carried with it into the lower bowel; possibly a regular course of sourkraut might be useful in some cases.

110. **Abderhalden's Serodiagnosis in Internal Medicine.**—Bauer reviews the literature on this subject to date, all the evidence tending to confirm the existence of specific ferments, digesting certain organ tissues. At the same time it must not be forgotten that in most cases the ferments are not absolutely specific but tend to be polyvalent. A kind of codigestion (*Mitabbau*) may occur like the coagglutination in serology. It is only a question of time, however, when the technic will be perfected to avoid these group reactions. At present we are only at the beginning of the harvest to be reaped from Abderhalden's method.

112. **Covered Perforation of the Stomach.**—Schnitzler reports two cases recently observed in which the syndrome indicated perforation of a gastric ulcer but then the symptoms subsided and there was recovery in the clinical sense although roentgenoscopy revealed the presence of an unmistable boring ulcer. He warns that operative treatment should never be deferred or omitted in these cases; the perforation is liable to cause serious trouble anew at any moment. Both his patients were young women and in the first case the opening had become plugged by the pancreas.

114. **Radial Paresis from Lead-Poisoning.**—Zondek reports a few typical cases to call attention to the difficulty in flexing the hand backward on the wrist, which he noticed in a few cases as the first sign of lead-poisoning. The grasp of the hand was abnormally weak, but otherwise the condition caused no disturbance. He gives illustrations, and remarks that this radial paresis may prove useful in differentiation.

Münchener medizinische Wochenschrift

November 4, LX, No. 44, pp. 2441-2496

117 *Pressure on the Brain with Certain Eye Affections. II. (Höhe des Hirndruckes bei einigen Augenkrankheiten.) L. Heine.
118 Influence of Altitude on the Blood. (Physiologische Wirkungen des Höhenklimas auf das Blut und ihre Deutung.) K. Bürker.
119 The Spirocheta Pallida in Syphilis of the Central Nervous System. M. Versé.
120 Physical and Biologic Laws of Radio-Activity. (Grundlagen der Strahlenwirkung radioaktiver Substanzen, bes. des Mesothoriums und der Ersatz derselben durch Röntgenstrahlen.) C. Müller.
121 *Abderhalden's Serodiagnosis in Mental Diseases. (Bedeutung des Abderhaldenschen Dialysierverfahrens für die psychiatrische Diagnostik.) B. Beyer.
122 Parasite of Exanthematous Typhus. (Ueber den Flecktyphuserreger.) M. Rabinowitsch.
123 *Diagnosis and Treatment of Non-Tuberculous Disease of the Apex. Litzner.
124 *Operative Treatment of Acute Pancreatitis. A. Hofmann.
125 Movements of Chest Walls during Respiration. (Bewegung des Brustkorbes bei der Atmung.) A. Keil.
126 *Moving Air in Treatment of Granulating Wounds. A. Heisler.
127 Connection of Nervous System with Motor Functioning of the Stomach. G. v. Bergmann.
128 *The Physician and the Tailor. (Die Hohe Schule für Aerzte und Kranke. IX.) M. Nassauer.

117. **The Pressure in the Cerebrospinal Fluid with Eye Disease.**—Heine called attention some time ago to the increase in the pressure of the cerebrospinal fluid as a sign of otherwise latent irritation of the meninges with certain affections of the eye, such as keratitis, herpes of the cornea, etc. He shows by a few examples that a scrap of iron in the eye, contusion or other injury or affection is liable to increase the pressure on the brain, the headache, vertigo and other signs of abnormal pressure keeping up for weeks in some cases. In others there may be no signs of abnormal pressure. His experience confirms the assumption that a psychic element plays a large part in the syndrome.

121. **Abderhalden's Serodiagnosis in Psychiatry.**—Beyer's findings in fourteen cases confirm the possibility of utilizing the specific reactions in differentiating between dementia praecox and other mental affections, and excluding simulation. In the six cases of dementia praecox, testicle or ovary and cortex tissue was digested at every test, while the response was constantly negative in the manic-depressive cases, in simple syphilis, etc.

123. **Non-Tuberculous Disease of the Apex.**—Litzner writes from the Rehburg sanatorium to describe a number of cases in which an apical process had simulated tuberculosis. He shows that a whole series of physiologic and pathologic changes may occur in the apex which have nothing to do with tuberculosis. With a process due to inhalation of dust, the percussion and auscultation findings and possibly coughing up of blood are not as a rule accompanied by fever, and the general health does not suffer so much as with tuberculosis. In one of the cases the influenza bacillus was found constantly in the sputum but never tubercle bacilli, and the tuberculin test was constantly negative. This patient had been under treatment for tuberculosis for nearly a year and during the year since she has had hemorrhage from the lungs, the seventh in the course of eight years, but she has never had fever nor night sweats; no sputum, but occasional cough. Recently there has been some expectoration but the bacteriologic findings are still the same as before: influenza bacilli and no tubercle bacilli. It is important to examine the sputum for fungi. With an infarct in the apex, the sudden onset of symptoms and the usual heart disease point to the correct differentiation; pleurisy may follow if the infarct reaches to the surface. In two cases the trouble was a tumor; there is dulness over a tumor while respiration does not seem to be totally arrested. Echinococcus disease may simulate a tuberculous process, but it can be differentiated by a puncture-fluid free from albumin but with large salt-content.

124. **Acute Pancreatitis.**—Hofmann reports the successful outcome in a case of acute pancreatitis in which he had intended to excise the necrotic portion of the pancreas, but desisted on account of uncontrollable hemorrhage after merely

cutting the gland across after separating the capsule over the anterior aspect of the pancreas. He adds that with acute pancreatitis there is a strip of tenderness running across the abdomen, the pain on pressure being equally acute all along this strip corresponding to the outline of the pancreas, from the epigastrium to the spleen, along the left costal arch.

126. **Hot-Air or Moving-Air in Treatment of Large Wounds.**—Heisler has no apparatus to apply the douche of hot-air which Bergeat extols as particularly useful in promoting the healing of extensive granulating surfaces. To secure a similar action on the wound, he has his patients expose the limb to the stream of air blown from an ordinary electric fan or other ventilator. The current of briskly moving air dries up the wound rapidly and healing proceeds with remarkable promptness. The moving air answers all the purposes apparently of a superheated air-douche; it proved particularly useful in hastening the healing of rebellious leg ulcers and discharging eczema.

128. **The Physician and the Tailor.**—In this ninth instalment of what Nassauer calls "The High-School for Physicians and Patients," he describes a doctor's experience in collecting his bill for delivering a primipara of 40. Delivery had been difficult and tedious, and some lacerations required suturing which he attended to at once. The elderly tissues did not hold the sutures well, and he told the woman to come to him later to have a stitch taken. When his bill was rendered, the husband, a tailor, sent the money for only half the amount of the bill, with a line saying "You overrate your work and you overrate my means. I had to have my wife's laceration sutured by Dr. Elbogen and I deduct the amount of his bill. The workman must pay for any damage he does." The physician wasted no thought on the writer of the note, but he imagined he could hear Dr. Elbogen's words as he repaired the laceration: "A tear of this kind is liable to happen to any one, but I have been very fortunate and have never had any in my practice. Why did not the obstetrician finish his work? perhaps he did not happen to have the necessary instruments with him. But the tear is bad now, and must be attended to at once. Come to the office and we'll have it fixed up in no time." "Elbogen's words were balm to the tailor's sordid soul," Nassauer concludes, "and their two hearts beat as one."

Therapie der Gegenwart, Berlin

November, LIV, No. 11, pp. 481-528

129 *Physical Measures in Treatment of Joint Disease. (Die physikalische Therapie der Gelenkkrankheiten.) P. Lazarus.
130 Experience with Rosenbach's Tuberculin. H. Bergmann.
131 *Treatment of Tabes and Progressive Paralysis. J. Donath.
132 *Pertussis and Its Treatment. (Keuchhusten.) Ochsenius.

129. **Physical Measures in Treatment of Joint Disease.**—Lazarus discusses the various physical measures that can be applied in treatment of acute and chronic arthritis, and describes the preferable technic. In chronic joint affections external treatment is generally more effectual than internal, contrary to what is observed with acute infectious polyarthritis. He says in conclusion that the results of physical measures often surpass those with drugs, and the general practitioner can apply them with simple procedures if only he will practice the proper technic. Physical measures have another important advantage in that they are applied by the physician himself, and thus more intimate relations develop between the physician and the patient than when he merely gives a prescription to be filled by a druggist. The physical measures should not be restricted to the hospitals and sanatoriums but every physician should master them, especially active and passive hyperemia, massage, massage of the hand in a mercury bath, ionization and radio-active applications.

131. **Medicinal Treatment of Tabes and General Paralysis.**—Donath remarks that the recently acquired knowledge that tabes and general paralysis are actual syphilitic processes points the way to treatment although irreparable lesions cannot retrogress. He applies a combination method, using salvarsan or neosalvarsan and sodium nucleinate or mercury as may be indicated. He warns that the symptoms at first may be and generally are aggravated by a kind of Herxheimer reaction, but if the patients are warned of this beforehand and told that the treatment will rouse up the disease, they bear with equanimity the aggravation and in a day or so the symptoms subside and great improvement becomes manifest. In a recent case a tabetic had suffered so long and intensely from gastric crises that an opening had been made into the intestine to permit him to be fed. As the crises still persisted, the Förster operation was contemplated. Donath was then consulted and he gave him neosalvarsan, about 2.55 gm. in four doses in the course of a month. After each infusion a severe gastric crisis followed for several hours but it then subsided, and as the patient could eat he gained rapidly in weight and strength and for nearly three months to date has had no further crises. Another patient with gummatous meningomyelitis, scarcely able to walk, had complete paraplegia develop the day after an intravenous injection of 0.3 gm. neosalvarsan. The paraplegia improved after a few days and by the end of the second week the dose could be repeated and the improvement has been progressive since; the patient can now walk normally. Donath warns that certain patients are unable to bear mercury, and this has to be dropped. He states that he has had no mishap in the more than 3,000 infusions he has made. The untoward by-effects reported in the early days of the salvarsan era were due to lack of care in regard to the smallness of the first doses, strict asepsis, mastery of the technic and exclusion from this treatment of persons with much degenerated important organs. He adds that electricity, hydrotherapy, massage and Frenkel's method of reeducating the muscles are seldom needed when the antisyphilis treatment can be vigorously applied, but they may prove useful when this is impossible.

132. **Whooping-Cough.**—Ochsenius was impressed with the fact that whooping-cough in its early stages presents merely the picture of infection of the upper air passages, pharyngitis with or without coryza. Aiming to prevent the spread of the infection downward, he paints the throat with a 2 per cent. solution of silver nitrate and in eighty-four of the ninety-five children to whom he has applied this measure in a thorough fashion, the effect was most excellent. The caustic action not only prevents secretion of mucus and thus wards off coughing spasms from irritation, but it has a most valuable effect on the child by suggestion. In the few cases in which this treatment seemed to fail, the children were all types of the exudative diathesis. He makes the application on alternate days, for infants every day at first, plus hydrogen dioxid. The result of the treatment was that by the end of the week the number of spasms was about the same but they were much less severe and there was much less secretion, and gradually the spasms became merely an ordinary cough.

Wiener klinische Wochenschrift, Vienna

October 30, XXVI, No. 44, pp. 1785-1832

133 Importance of a Constitutional Predisposition to Morbidity. (Bedeutung konstitutioneller Momente.) J. Bartel.
134 *Operative Treatment of Gastric Ulcer at a Distance from the Pylorus. A. Brenner.
135 Acidity of the Blood with Osteomalacia. J. Novak and O. Porges.
136 *Electric Accidents. (Bedeutung der Art und Intensität elektrischer Starkströme bei Einwirkung auf den Tierkörper.) S. Jellinek.
137 Freezing of Limbs in Military Campaigns. (Erfrierungen im Kriege.) v. Massari and G. Kronenfels.
138 Foreign Bodies in Air Passages; Two Cases. (Zur Fremdkörperextraktion aus den Luftwegen.) E. Paul.
139 Benzol in Leukemia; Two Cases. A. Krokiewicz.

134. **Gastro-Enterostomy or Resection for Gastric Ulcer.**—Brenner states that among the 326 gastro-enterostomies done since 1896 in his service, 67 were for a gastric ulcer at some distance from the pylorus. Ten in this group died during or soon after the operation (pneumonia, 3; peritonitis, 2; and the others from heart or kidney disease and one from perforation of the ulcer a week after the operation). In the 50 cases followed to date, 64 per cent. are permanently cured. The proportion of permanently cured among 18 surviving resection and followed to date has been only 55 per cent. Simple gastro-enterostomy is thus seen to give encouraging

and durable results; on the other hand, resection does not protect against recurrence of the ulcer and against cancer, while the operation makes such demands on the vitality that the immediate mortality in the 25 cases was 28 per cent.

136. **Electric Accidents.**—Jellinek reviews former experimental research by others and some recent work in this line by himself, the conclusions all pointing to the amperage as directly responsible for the effect on respiration and circulation. The voltage and wattage are far subordinate factors in the outcome.

Zeitschrift für klinische Medizin, Berlin

LXXVIII, Nos. 3-4, pp. 205-369. Last indexed Sept. 13, p. 909

140 Oversaturated Solutions of Uric Acid in the Body. (Untersuchungen über die übersättigten Lösungen der Harnsäure und ihrer Salze.) R. Kohler.
141 Biologic Action of Thorium X. V. Salle and A. v. Domarus.
142 The Epinephrin Content of the Adrenals in Thorium X Intoxication. (Zur Frage des Adrenalingehalts der Nebennieren bei Thorium X-Intoxikationen.) V. Salle and E. Apolant.
143 The Blood-Pressure after Injections of Thorium X: Experimental Research. (Blutdruck nach Thorium X-Injektionen.) W. Sudhoff and E. Wild.
144 Disappearance of Uric Acid from the Blood in the Gouty after Treatment with Radio-Active Substances. F. Gudzent.
145 The Share of the Nervous System in the Regulation of the Body Temperature. (Die nervöse Regulierung der Körpertemperatur; Rolle. der Nebenniere.) A. Döblin and P. Fleischmann.
146 The Fat-Splitting Ferments in the Blood-Serum. (Fettspaltende Fermente im menschlichen Blutserum, ihre Abhängigkeit von krankhaften, namentlich kachektischen Zuständen, ihre Unabhängigkeit von der histologischen Zusammensetzung des Blutes.) L. Caro.
147 Diabetes Insipidus. C. Socin.
148 *Lessons Learned from Roentgen Examination of 1,200 Stomachs. (Klinische Erfahrungen über die Leistungen, die Grenzen und die Fehlerquellen bei der Röntgendiagnose der geschwürigen und krebsigen Veränderungen des Magens.) L. Schüller.
149 Progressive Dystrophy of the Muscles; Death from Paralysis of the Diaphragm. C. Braunwarth.

148. **Roentgen Examination of the Stomach.**—Schüller writes from the hospital at Düsseldorf that Roentgen examination of the stomach in 1,200 cases has confirmed the great value of this means of investigation in malignant disease, but that it is of little use for diagnosis of gastric ulcer. It shows up an indurated, perforated ulcer, but this type is rare; it also shows the sequels of an ulcer, but to date, he declares, the Roentgen rays have not helped at all in the diagnosis of a recent ulcer and in the overwhelming majority of cases of chronic ulcer. With cancer, however, it instructively supplements the clinical examination and the history of the case. In all his experience the Roentgen findings were never normal in a case with a history of stomach trouble for some time and actual cancer. On the other hand, the trouble never proved to be cancer when with the history of stomach trouble for some time roentgenoscopy showed apparently normal conditions in the stomach. Absolute certainty can be expected only with positive findings, as an incipient cancer may give no sign of its presence. He lays the principal stress on roentgenoscopy, showing the peristalsis and movability of the stomach, viewing it from different points. Roentgenograms are far less instructive. He adds that beginning cancerous degeneration of an old ulcer seldom shows conclusively on Roentgen examination. With this exception, normal findings enable malignant disease to be excluded and the patient reassured. When the ordinary means of investigation are supplemented by roentgenoscopy, we get as complete and accurate an estimate of conditions in the stomach as was attainable formerly only by an exploratory laparotomy. The various points liable to prove misleading are discussed in detail with about a hundred small skiagrams to illustrate the various instructive types encountered in bismuth work.

Zentralblatt für Chirurgie, Leipsic

November 8, XL, No. 45, pp. 1737-1768

150 *Differential Pressure Maintained Through the Nose for General Anesthesia. (Nasale Ueberdrucknarkose.) J. H. Zaaijer.
151 *Liquid Paraffin in Treatment of Wounds; 920 Cases. (Ueber ein erfolgreiches einfaches, im Balkankrieg erprobtes Wundbehandlungsmittel.) J. G. Chrysospathes.
152 Operation for Congenital Diverticulum in the Bladder. Kreuter.

150. **Differential Pressure by Way of the Nose.**—Zaaijer reports from Korteweg's surgical clinic at Leyden a remarkably simple and effectual technic for maintaining positive pressure in the lungs during operations on the esophagus. The large apparatus for differential pressure are complicated and expensive, and the Meltzer-Auer technic for intracheal insufflation is sometimes difficult to realize. He has experimented only on dogs, but he found his method so practical and effectual that he thinks it is applicable for the clinic. A rubber tube was introduced for a few centimeters in each nostril, the size of the tube such that it fits firmly in place. It is easily introduced over a catheter. By connecting these tubes with the oxygen tank and introducing a water safety-valve between the tank and the nostril, the lungs can be kept pumped full of air even with the chest open; the animal continues to breathe tranquilly. Even when the mouth is open, the breathing proceeds tranquilly, only a little more oxygen is required. He thus kept the animal for five minutes in tranquil general anesthesia with free access of air to each side of the chest, with his mouth open and with a catheter introduced into the esophagus. He found in tests on himself and on an anesthetized patient that respiration proceeded practically normally with open mouth. He did not force the positive pressure above 6 cm. water. The pharynx closes up, the intrapharyngeal pressure forcing the soft palate downward and the epiglottis forward. Only intermittently was it possible for air to escape through some narrow slit. He adds that the oxygen-chloroform mixture may be passed through warm water as with the Meltzer technic.

151. **Liquid Paraffin as Dressing for Wounds.**—Chrysospathes found paraffin oil an effectual dressing for sores of all kinds, and reports here that he applied it in treatment of wounds in the Balkan War in 920 cases and the wound healed over in a remarkably short time with a few rare exceptions. Even gaping wounds with exposed bones began to heal at once. The results were even better when he added about 2 per cent. iodoform with particularly severe suppuration. If the gauze sticks, it can be detached by pouring a little more of the oil on it or hydrogen dioxid. He expatiates on the advantages of this simple method of treatment, which does away with all salve and time-stealing procedures. In some of his cases the temperature dropped to normal each time after application of the paraffin, but rose again when the oil was suspended. He has been using this method for some years, having found it so effectual for sterilizing catheters and healing bed-sores.

Zentralblatt für Gynäkologie, Leipsic

November 8, XXXVII, No. 45, pp. 1645-1676

153 *Retrogression of Bladder Changes under Radiotherapy of Cancer of Uterine Cervix. (Rückbildung der Blasenveränderungen bei bestrahlten Collumkarzinomen.) W. Sigwart.
154 *Extraperitoneal Cesarean Section and Publotomy. (Extraperitonealer Kaiserschnitt und Beckenspaltung.) W. Weibel.

153. **Radiotherapy of Cancer of the Uterine Cervix.**—Sigwart gives some cystoscope views of the interior of the bladder taken before and after Roentgen treatment of a cancer in the uterine cervix. They show the remarkable retrogression of the bladder changes as the uterine growth subsided under the Roentgen treatment.

154. **Extraperitoneal Cesarean Section and Pubiotomy.**—Weibel states that extraperitoneal cesarean section has been applied in sixty-seven cases during the last five years at Wertheim's clinic at Vienna; during this period pubiotomy has been done thirty-nine times and symphyseotomy not once. In the sixty-seven extraperitoneal cesarean sections, all but two of the children were delivered alive; in one case the mother had become very much asphyxiated during the operation and in the other case the fetal heart sound had grown abnormally weak before any intervention. The mortality in the sixty-seven cases was 3 per cent, and none in the last series of fifty-two women succumbed. One of the thirty-nine women requiring pubiotomy died from thrombophlebitis, twenty-five days after the operation. He thinks that the mortality of 8 per cent. among the children for both opera-

tions is encouragingly low. The 3 per cent. mortality among the mothers occurred while the method was still in its tentative stage.

Zentralblatt für innere Medizin, Leipsic

November 8, XXXIV, No. 45, pp. 1121-1144

155 *Atrophy of Intestinal Mucosa with Pernicious Anemia. R. v. Lippmann.
156 Quantitative Determination of Indican in the Urine. (Harnindikanbestimmung.) D. Natonek.

155. **Atrophy of the Intestinal Mucosa in Pernicious Anemia.**—Lippmann has been investigating the normal relations between the apparent and the real functional capacity of the stomach. He describes the method by which he determined the comparative weight of the musculature and the stomach and the intestine. In a typical case of pernicious anemia he found that the proportion between the mucosa and the musculature in the small intestine was as 100 to 198; for the large intestine as 100 and 403. These findings exclude the assumption that atrophy of the mucosa is a constant accompaniment of pernicious anemia.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 2, XXXIV, No. 131, pp. 1367-1382

157 Plastic Induration of the Penis. F. Cinquemani.

Policlinico, Rome

October 26, XX, No. 43, pp. 1545-1584

158 *Scorbutus in Children. M. Spolverini.
159 Phlegmasia Alba as Complication of Pneumonia. L. Castriota.

November 2, No. 44, pp. 1585-1620

160 Myeloid Leukemia with Eye Symptoms. (Caso di leucemia mielogena con una particolare manifestazione oculare.) L. Casolino.
161 Epidemic of Undulant (Malta) Fever in Italy. O. Golini.

158. **Infantile Scorbutus.**—Spolverini reports three cases to show the difficulty of differentiating the true cause for the disturbances in the incomplete forms of scorbutus in infants. There was no swelling of the gums or thickening of the shafts of the long bones in his cases to suggest Barlow's disease; the children merely grew paler and restless, whining and pleading to be taken up and carried, tiring easily, sweating freely, particularly in the head and face. There was nothing characteristic about the symptoms, but the weakness and anemia persisted uninfluenced by ordinary means. There was no spontaneous pain, but the children kept very quiet, with the legs drawn up, to avoid the pain from movements. One of the children was about 2 years, the others 10 or 19 months old. The differentiation in such cases from hip-joint or spinal disease, acute rachitis, neuritis, etc., is by exclusion and by the prompt benefit from change of diet.

Riforma Medica, Naples

October 25, XXIX, No. 43, pp. 1177-1204

162 *Amputation of the Breast. (Sul mio processo di amputazione della mammella per cancro.) I. Tansini.
163 Dilute Acetic Acid Test to Differentiate Effusions and Transudates. M. Barberio.
164 Differential Test-Tube Reactions of Elements of the Blood. (L'azione, in vitro, sul biossido di carbonio, dei polinucleati e dei linfociti, confrontata con quella dell' emoglobina.) M. Ciovini.
165 *Significance of Azurophil Granules in Lymphoid Cells in Infectious Diseases. E. Mondolfo. Commenced in No. 42.
166 *Benzol in Leukemia. C. Quadrone and C. U. Buzzano. Commenced in No. 42.
167 *Stain for Tubercle Bacilli. (Metodo rapidissimo per la colorazione del bacillo tubercolare.) N. Mori.

162. **Amputation of the Breast.**—Tansini's technic for radical removal of cancer of the breast was described in THE JOURNAL, March 23, 1912, p. 899. He thinks it should be given the preference whenever a radical operation is possible as it does away with the possibility of recurrence in the skin, which his experience previously has shown to be a most common type of recurrence. A few months or years after the operation with other technics, a cancer lump appears in the skin, while recurrence in muscle or lymph-node is much less frequent, at least in Italy, he says. Others besides himself have commented on this. Other surgeons regard the skin as of less importance than muscle and lymph-nodes when it is a question of recurrence, and they are liable to pay dearly for this confidence in the skin. After Tansini has extensively removed the skin he covers the vast defect left by twisting a large flap around from the back, the farthest possible from the skin near the site of the cancer. His method is thus not essentially a plastic operation, but he has to do an extensive plastic operation to conclude his thorough removal of the cancer and tissues liable to recurrence. His method has the incidental advantage that it does away with the linear scar in the axilla which is liable to shrivel and interfere with the use of the arm.

165. **Azurophil Lymphocytes in Infectious Diseases.**—Mondolfo found granulations taking azure stain in the lymphatic cells in all the infectious diseases studied but not with any degree of constancy or intensity of staining. On the other hand, they proved invariably constant and strongly azurophil in measles—possibly a fact of diagnostic importance.

166. **Benzol in Leukemia.**—In the four cases of leukemia reported, little if any benefit was realized from the benzol.

167. **Improved Stain for Tubercle Bacilli.**—Mori regards the technic he describes as the best yet proposed, not only for its rapid action and reliability, but for the beauty of the results. It is a modification of Ziehl's first method, differing by the formula of the fuchsin stain, and by the fact that all can be used cold, and that no sediment develops on standing. The carbol-fuchsin solution is made with 0.5 gm. fuchsin, 10 c.c. absolute alcohol, 2.5 gm. phenol and 100 c.c. distilled water. The fuchsin is dissolved in the alcohol, the phenol is then added, and then the water is stirred in a little at a time, and the mixture is then set aside for twenty-four hours and then filtered. Differentiation is done with a 1 per cent. solution of sulphuric acid, and the contrast staining with a 1 to 4,000 solution of methylene blue. Each fluid is applied in turn for ten or fifteen minutes, washing in water between.

Meditsinskoe Obozrienie, Moscow

LXXX, No. 12, pp. 1-106

168 Effect of Mother's Illness on Health of Nursing Infant. (Kormlenie bolnimi materiami grudiu svoik dietie.) T. A. Znetseff.
169 Stenosis of Pylorus in Children; Case of Pylorospasm in Eight-Months' Infant and in Girl of Twelve. P. V. Kuskoff.
170 Interpretation of Palpation Findings at the Appendix. (Palpatsie cherveobraznago otrostka.) M. M. Riezanoff.
171 Sixth Edition of Russian Pharmacopeia. S. I. Chirvinski.
172 Pharmacologic Study of Epinephrin. (Hypernephrinum.) V. A. Smirnoff.

Hospitalstidende, Copenhagen

November 5, LVI, No. 45, pp. 1325-1348

173 *Tuberous Sclerosis of the Brain. (Den tuberøse Hjerneskl rose.) O. Keller and H. Scharling. Commenced in No. 44.

173. **Tuberous Sclerosis of the Brain.**—Keller and Scharling report nine cases of this affection with necropsy in four; the other patients are still living. All are idiots and all but two are epileptic and all but two have the characteristic adenoma sebaceum which usually seems to be associated with this congenital disease. Necropsy revealed other tumors in internal organs in some. There was no history of inherited taint except possibly in two cases. Two were not epileptics; only one case is on record with the typical affection not accompanied by epilepsy. It commenced before the child was a year old in all these cases. In the twenty-five cases they have found on record with necropsy, including their own four, a neuropathic predisposition was evident in only 48 per cent.; epilepsy in 88 per cent.; adenoma sebaceum in 64 per cent.; tumors in the kidneys in 76.3 per cent. and in the lateral ventricles in 45 per cent., and tuberous sclerosis in the brain in 100 per cent.

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174 Shape of the Anterior Surface of the Crystalline Lens. (Form der Linsenfläche im menschlichen Auge.) J. W. Nordenson.
175 Formation of Uric Acid. (Bildung der Harnsäure beim Menschen.) J. P. Chrom.
176 Chemical-Bacteriologic Study of the Air in the Moving-Picture Shows at Stockholm. (Luftundersökningar å Stockholms biografer.) E. Levin.